Best Way's book of

MATHEMATICS

ANSWER KEY

5

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1 Large Numbers

Get Started

1. Greatest 7-digit number = 9999999

TL	L	TTH	TH	H	T	O
9	9	9	9	9	9	9

2. Number of students appeared in first year = 90,000

Number of students appeared second = 83,000

Number of students appeared third = 52,000

Total number of students appeared = Number of students in (First year + Second year + Third year)

= 90,000 + 83000 + 52000

= 2, 25, 000 students

Hence, 225000 students appeared in exams.

Exercise 1.1

1.

	C	TL	L	TTH	TH	H	T	O
(a)		1	0	3	8	9	6	2
(b)	5	7	9	2	8	0	4	4
(c)	6	8	3	2	6	4	3	1

2. (a) 6,34,949

(b) 40,30,689

(c) 5,66,24,407

(d) 4,00,73,016

3. (a) 99,93,428 = Ninety nine lakh ninety three thousand four hundred twenty eight

(b) 54,26,569 = Fifty four lakh twenty six thousand five hundred sixty nine.

(c) 3,92,56,872 = Three crore ninety two lakh fifty six thousand eight hundred seventy two.

(d) 8,76,54,321 = Eight crore seventy six lakh fifty four thousand three hundred twenty one.

(e) 32,68,92,763 = Thirty two crore sixty eight lakh ninety two thousand seven hundred sixty three.

Exercise 1.2

1. (a)

TTH	TH	H	T	O
8	8	2	5	6

→ 5 × 10
= 50

(b)

C	TL	L	TTH	TH	H	T	O
9	0	0	4	2	0	0	3

→ 0 × 1000
= 0000

(c)

TC	C	TL	L	TTH	TH	H	T	O
9	8	8	7	7	7	2	3	1

→ 9 × 10000000
= 900000000

(d)

L	TTH	TH	H	T	O
8	2	4	5	9	6

→ 2 × 10000
= 20000

(e)

TL	L	TTH	TH	H	T	O
7	3	9	6	4	0	0

→ 3 × 1000
= 300000

2.

	Predecessor: Number – 1	Succesor: Number + 1
(a)	3684502 – 1 = 3684501	3684502 + 1 = 3684503
(b)	8095200 – 1 = 8095199	8095200 + 1 = 8095201
(c)	27600541 – 1 = 27600540	27600541 + 1 = 27600542

(d)	4598006 – 1 = 4598005	4598006 + 1 = 4598007
(e)	670908032 – 1 = 670908031	670908032 + 1 = 67090833

3. (a) **84856431** = 80000000 + 4000000 + 800000 + 50000 + 6000 + 400 + 30 + 1

(b) **36000321** = 30000000 + 6000000 + 300 + 20 + 1

(c) **86010203** = 80000000 + 6000000 + 10000 + 200 + 3

4. (a) 30066052

(b) 80074505

(c) 8069808

Exercise 1.3

1. (a) 806921 > 90346

[5 digits > 4 digits]

(b) 169296 > 154325

(c) 56423 > 56342

(d) 106923 = 106923

(e) 9996 < 94692

[4 digits < 5 digits]

(f) 89999 > 9000

[5 digits > 4 digits]

2. (a) 44361, 45462, 50013, 49356

44361 < 45462 < 49356 < 50013 [4 < 5]

[4 < 5 < 9]

(b) 110032, 121369, 2126, 312

312 < 2126 < 110032 < 121369 [3 digits < 5 digits] [1 < 2]

3. (a) 696969, 690691, 70632, 87769

696969 > 690691 > 87769 > 70632

[6 digits > 5 digits] [6 > 0] [8 > 7]

(b) 100691 > 12169, 132912, 66920

132912 > 100691 > 66920 > 12169 [6 digits > 5 digits] [3 > 0] [6 > 1]

4. (a) To form the greatest 7-digit number we must repeat the biggest digit and put the in descending order.

6 > 5 > 3 > 2 > 0 = 6665320

(b) To form the greatest 7-digit number we must repeat the biggest digit and put then in descending order.

5 > 4 > 3 > 2 = 5555432

(c) To form the greatest 7-digit number we must repeat the biggest digit and put then in descending order.

9 > 2 > 1 > 0 = 9999210

5. To form the smallest number we must put the digits in ascending order

0 < 1 < 2 < 3 < 4 < 5 = 102345 [0 at the left most has no value]

[To form the greatest number we must put the digits in desending order]

5 > 4 > 3 > 2 > 1 > 0 = 543210

6. To form the smallest number we must put the digits in ascending order

0 < 1 < 2 < 3 < 4 < 5 < 6 < 9 = 10234569 [0 at the left most has no value]

[To form the greatest number we must put the digits in descending order]

9 > 6 > 4 > 3 > 2 > 1 > 0 = 96543210

Exercise 1.4

1. (a) 48,029,104

(b) 95,345,000

(c) 36, 206, 101

2. (a) 7,698,7432

(b) 8,6007,349

(c) 30,104,699

3. (a) 36,890,460: Thirty six million eight hundred ninety thousand four hundred sixty.

(b) 82,392,890: Eight two million three hundred ninety two thousand Eight hundred ninety.

(c) 2,070,082: Two million seventy thousand eighty two.

4. (a) 1 crore = 1,00,00,000 = 10 millions

(b) 1 lakh = 1,00,000 = 100 thousands

(c) 1 million = 1,000,000 = 1000 thousands

(d) 10 millions = 10,000,000 = 100 lakhs

5. 1 million = 1,000,000 = Thousands = Lakhs = Hundred ten thousands

Exercise 1.5

1. (a) 3$\underline{5}$ = 40

[5 = 5]

(b) 447 = 450

[7>5]

(c) 95$\underline{6}$ = 960

[6 > 5]

(d) 335 = 340

[5 > 5]

(e) 606$\underline{2}$ = 60$\underline{6}$0

[2 < 5]

(f) 9069 = 9070

[9 > 5]

(g) 7854$\underline{4}$ = 78540

[4 < 5]

(h) 4869$\underline{2}$ = 48690

[2 < 5]

2. (a) 5$\underline{1}$4 = 500

[14 < 50]

(b) 6$\underline{9}$9 = 700

[99 > 50]

(c) 4$\underline{6}$9 = 500

[69 > 50]

(d) 57$\underline{6}$5 = 5800

[65 > 50]

(e) 12$\underline{9}$6 = 1300

[96 > 50]

(f) 234$\underline{5}$6 = 23500

[56 > 50]

(g) 1000$\underline{1}$2 = 100000

[12 < 50]

(h) 129$\underline{6}$9 = 13000

[69 > 50]

3. (a) 7$\underline{6}$92 = 8000

[692 < 500]

(b) 6$\underline{9}$26 = 7000

[926 < 500]

(c) 222$\underline{3}$9 = 22200

[239 > 500]

(d) 335$\underline{6}$43 = 336000

[643 < 500]

(e) 318$\underline{9}$32 = 319000

[932 < 500]

(f) 69$\underline{2}$96 = 69000

[296 < 500]

(g) 34$\underline{4}$56 = 34000

[456 < 500]

(h) 10$\underline{3}$69 = 10000

[369 < 500]

4. Total number of people in cricket stadium = 12950

Round off to nearest ten of people: 12956 = stadium = 12960 [56 < 50]

Hence number of seats required to accommodate then all is = 12960

Exercise 1.6

1. (a) CCXXV

(b) CDXII

(c) DCCLXIX

(d) MCLX

(e) CCCXXXV

(f) MMDCII

2. (a) 10 + 10 + 6 = 26

(b) 50 + 10 + 10 + 2 = 72

(c) 500 + 5 + 1 = 506

(d) 1000 + (10 – 1) = 1000 + 9 = 1009

(e) 100 + 50 + 5 + 1 + 1 = 157

(f) MXXI = 1021

3. (a) CDVI $<$ 416

(500 – 100) + 5 + 1 $\square$ 416

406 $<$ 416

(b) CCXCII $>$ 385

100 + 100 + 100 + (100 – 10) + 1 + 1 $\square$ 385

= 300 + 90 + 2 $\square$ 385

= 392 $>$ 385

(c) CMXCII $=$ 992

(1000 – 100) + (100 – 10) + 1 $\square$ 992

900 + 90 + 2 $\square$ 992

992 $>$ 992

(d) DVI $>$ 206

500 + 5 + 1 $\square$ 206

506 $>$ 206

(e) CCCLXXXVIII $=$ 388

100 + 100 +100 + 50 + 10 $\square$ 38 + 10 + 10 + 5 + 1 + 1

= 300 + 80 + 8 $\square$ 388

= 388 $=$ 388

(f) CLC $<$ 159

100 + 50 + 5 $\square$ 159

155 $<$ 159

Learning Updates

1. (a) 10

(b) 6000000 = 7

(c) Successor

(d) Predcessor

(e) zero

(f) Ten thousand

2. (a)

CR	TL	L	TTH	TH	H	T	O
8	7	0	5	9	3	2	6

→ Place value = Face value × place

= 8 × 10000000 = 80000000 = 8 crore

True

(b) False as lakh place has only 2 place that are lakhs

3. (a) **7370795** - Seventy three lakh seventy thousand seven hundred ninety-five

(b) **87295362** - Eight crore seventy-two lakh ninety-five thousand three hundred and sixty-two

(c) **80195276** - Eight crore one lakh ninety-five thousand two hundred and seventy six.

4. (a) **8065259** - Eight million sixty-five thousand two hundred fifty-nine.

(b) **98308473** - Ninety-eight million three hundred eight thousand four hundred seventy-three.

(c) **30303030** - Thirty million three hundred three thousand thiry.

5. (a) 15,19,09,990

(b) 24,08,07,104

(c) 30,805,106

6. (a)

CR	TL	L	TTH	TH	H	T	O
7	0	1	8	6	5	4	9

Place value = Face value × place
= 4 × 10 = 40

(b)

CR	TL	L	TTH	TH	H	T	O
8	2	9	6	3	5	7	0

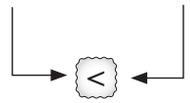
Place value = Face value × place
= 2 × 10,00,000 = 20,00,000

(c)

CR	TL	L	TTH	TH	H	T	O
9	8	3	7	8	0	1	6

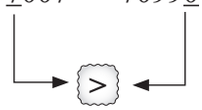
Place value = Face value × place
8 × 1000 = 8000

7. (a) 9979779 9979977



[7 < 9]

(b) 70997007 70990707



[7 < 0]

8. (a) 63790568, 57290458, 62791023, 62790562, 62790931

57290458 < 62790562 < 620790931 < 62791023 < 57290458 < 63780568

(62790562 < 62790931 [5 < 9], 62790931 < 63791023 [0 < 1], 62790562 > 57290458) [6 > 5]

(b) 7564980, 21350014, 998765, 888625, 23149925, 7546786

868625 < 998765 < 7546786 < 7564890 < 21350014 < 23149925

[6 digits < 7 digits < 8 digits] [8<9]

9. (a) 2637928, 10199230, 20547946, 10061650, 15035810

20547946 < 15035810 < 10199230 < 10061650 < 2637928

[8 digits > 7 digits]

(b) 12965783, 3076897, 26940354, 2789988, 21345603

26940354 < 21345603 < 12965783 < 3076897 < 2789988

[7 digits < 8 digits]

10. (a) 3, 7, 8, 4, 0, 2: Ascending order = 0, 2, 4, 3, 7, 8

3, 7, 8, 4, 0, 2: Desending order = 8, 7, 3, 4, 2, 0

Smallest digit: 203478 [0 at ones place has no value]

Greatest digits: 874320

(b) 8, 0, 5, 1, 3, 9, 4: Ascending order: 0, 1, 3, 4, 5, 8, 9

8, 0, 5, 1, 3, 9, 4: Descending order: 9, 8, 5, 4, 3, 1, 0

Smallest digit: 1034589

Greatest digit: 9854310

11. (a) 1023456

(b) 9876543

12. (a) 10000002

(b) 99999987

13.

	Rounded off to 10's	Rounded off to 10'0's	Rounded off to 100'0's
(a)	1609330	1609300 [9 > 5]	1609300 [29 > 50]
(b)	4012890	4012900 [3 < 5]	401300 [93 < 100]

14. (a) Ninety one million two hundred seventy six thousand one hundred fifteen

(b) Sixty one million ninety five thousand two hundred ninety seven.

(c) Six million eight hundred sixty four thousand six hundred two

(d) Two crores sixty seven lakh eight seven thousand nine hundred forty one.

15. (a) 31,743,368

(b) 1,398,546

(c) 33,106,071

(d) 44,66,899

Multiple Choice Question

1. (a) ones place

2. (c) ten millions

3. (b) Period

4. (c) ten cores

5. (a) 7

6. (d) v

7. (50 + 10 + 10 + 10 + 5) + (50 + 10 + 10 + 5) + (50 + 10) + (50 – 10)

= 85 + 75 + 60 + 40 = 260

Answer: (d) 260

8. CDI = (500 – 100) + 1 = 401

Sucessor = 401 + 1 = 402

Answer: (a) 402

9. MXLV = 1000 + (50 – 10) + 5 = 1000 + 40 + 5 = 1045

Prdecessor of 1045 = 1045 – 1 = 1044

Answer: (d) 1044

10. 81 lakh = 800000 = 800 thousand

Answer: (b) 800

Skills Check

1. (a) 100 times

2. Greatest 3 digit number = 999

Smallest 3 digits number = 100

Difference between them = 999 – 100 = 899 = DCCXCIX

Answer: (b) DCCXCIX

2 Fundamental Operations

Get Started

1. (i) Population of Shyam nagar = 28576

Population of Ram nagar = 83768

Numbers of people live in the two cities = Population of Shyam nagar + Population of Ram nagar

	①	①	①	①	
	2	8	5	7	6
+	8	3	7	6	8
1	1	2	3	4	4

= 28576 + 83768

= 112344

Answer: 112344 people lives in the two cities.

(ii) Number of more people live in Ram Nagar than Shyam Nagar : Population of Ram Nagar – Population of Shyam Nagar

	⑦	⑬	⑥	⑯	
	~~8~~	~~3~~	~~7~~	~~6~~	8
–	2	8	5	7	6
	5	5	1	9	2

= 83768 – 28576

= 55192

Answer: 55192 more people live in Ram Nagar than in Shyam Nagar

2. (a) Cost of skirt = ₹37575

Cost of t–shirt = ₹726.75

Cost of Pair of socks = ₹42.65

Total many Sheena spent = Cost of skirt + Cost of tshirt + Cost of socks

= ₹375. 75 + ₹726. 75 + ₹42. 65

= ₹1145.15

Answer: Sheena spent total ₹1145. 15

(b) Money given to shopkeeper: ₹2000

Money sheena will get back: Money given to shopkeeper - Totaol money sheena spent

= ₹2000 – ₹1145.15

= ₹854.85

Answer: Sheena will get back ₹854.85.

Exercise 2.1

1. (a)

	①	①	①		①	
	2	7	4	9	2	7
+		3	7	8	5	6
	3	1	2	7	8	3

(b)

	①	①	①	①		
	2	6	5	4	5	2
+	2	8	7	6	5	1
	5	5	3	1	0	3

(c)

	①	①		①	①	①	
		8	9	2	9	7	6
+	3	6	5	6	5	4	5
	4	5	4	9	5	2	1

(d)

	①	①		①	①	①	
	7	9	8	0	0	3	7
+		6	5	2	9	8	6
	8	6	3	3	0	2	3

(e)

	②	①	②	①	①	
	2	8	6	9	7	3
	1	7	6	6	5	6
+	2	4	2	7	6	2
	7	0	6	3	9	1

(f)

	①	①	①	②	①	
	8	7	5	0	3	2
	3	3	0	6	8	2
+	4	5	6	4	8	7
1	6	6	2	2	0	1

2. (a)

	①		①	①	
	4	9	3	3	8
+	5	2	1	8	4
1	0	1	5	2	2

(b)

	6	3	2	6	2	6
+			7	3	4	3
	6	3	9	9	6	9

(c)

	①	①		①		
	4	4	3	4	4	8
+		6	7	2	4	8
	5	1	0	6	9	6

(d)

	①	①		①		
	3	4	8	1	6	4
+	2	7	3	4	2	6
	6	2	1	5	9	0

(e)

	①	①	②	①	①	
	3	4	3	6	4	9
		8	3	7	3	1
+			5	9	6	9
	4	3	3	3	4	9

(f)

	①	①	①	①	①	
		2	4	3	6	4
	4	3	2	4	0	3
+	8	4	8	3	6	4
1	3	0	5	1	3	1

3. (a) 5326 + 36458 = <u>36458</u> + 5326

(b) <u>236483</u> + 31364 = 31364 + 236483

(c) 26436 + <u>0</u> = 26436

(d) <u>100</u> + 362704 = 362704

(e) 149568 + <u>1</u> = 149569

4. (a) Bicycles sold in year 2020 = 65892

Bicycle sold in year 2021 = 987379

	①	①	①	①	①	
		6	5	8	9	2
+	9	8	7	3	7	9
1	0	5	3	2	7	1

Total bicycles sold in two years = Bicycles sold in year 2020 + Bicycles sold in year 2021

= 65892 + 987379

= 1053271

Answer: 1053271 cycles were sold in these two years by the dealer.

(b) Number of people visited cinema hall in May = 97932

Number of people visited cinema hall in June = 75307

Number of people visited cinema hall in July = 105975

Number of people visited cinema hall in these three months = sum of number of people visited cinema hall in may, June and July.

= 97932 + 75307 +105975

		①	②	①	①	
		9	7	9	3	2
		7	5	3	0	7
+	1	0	5	9	7	5
	2	7	9	2	1	4

Answer: 279214 people visited cinema is May, June & July.

(c) Number of Hindi books = 787930

Number of Computer book = 39750

Number of Science = 82865

Total books in library = Number of Hindi books + Number of Science books + Number of Computer books .

	②	②	②	①		
	7	8	7	9	3	0
		3	9	7	5	0
+		8	2	8	6	5
	9	1	0	5	4	5

= 787930 + 39750 + 82865

Answer: There are total 910545 books in the library.

Exercise 2.2

1. (a)

		⑭			⑪	
	⑧	~~4~~	⑭	⑤	~~7~~	⑪
	~~9~~	~~5~~	~~4~~	~~6~~	~~2~~	~~7~~
−		9	6	3	5	4
	8	5	8	2	6	7

(b)

					⑥	⑬
	5	9	8	9	~~7~~	~~3~~
−	4	7	8	3	4	7
	1	2	0	6	2	6

(c)

		⑪	⑭	⑮	⑯		
	②	~~1~~	~~4~~	~~5~~	~~6~~	⑩	
	~~3~~	~~2~~	~~5~~	~~6~~	~~7~~	~~0~~	9
−	1	9	9	9	9	9	9
	1	2	5	6	7	1	0

2. (a)

	⑦	⑫	③	⑬	
	~~8~~	~~2~~	~~4~~	~~3~~	~~6~~
−		9	3	6	4
	7	3	0	7	2

(b)

		⑯	⑮	⑬	⑰	
	④	~~6~~	~~5~~	~~3~~	~~7~~	⑬
	~~5~~	~~7~~	~~6~~	~~4~~	~~8~~	~~3~~
−	4	9	9	9	9	9
	0	7	6	4	8	4

(c)

		⑨	⑨	⑨	⑨	
	⓪	~~10~~	~~10~~	~~10~~	~~10~~	⑩
	~~1~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~
−		5	8	3	6	4
	0	4	1	6	3	6

3. (a)

	[4]	7	6	4	[3]	6
−	2	3	9	4	8	[2]
	2	[3]	6	[9]	5	4

(b)

	6	7	3	[6]	4	2
−	4	1	[7]	3	4	2
	[2]	5	6	3	0	[6]

(c)

	8	4	[0]	3	6	5
−	[5]	2	9	[6]	[3]	7
	3	1	0	7	2	[8]

4. (a) 567384 – 0 = <u>567384</u>

(b) 24368 – <u>0</u> = 24368

(c) 714326 – 714326 = <u>0</u>

(d) 243646 – <u>243646</u> = 0

5. (a) 243647 + 2048 – 18364 = 227331

					①	
	2	4	3	6	4	7
+			2	0	4	8
	2	4	5	6	9	5

→

				③	⑮	
	2	4	5	6	9	5
−		1	8	3	6	4
	2	2	7	3	3	1

(b) 443640 – 21430 + 12683 = 409527

	4	4	3	6	4	0
−		2	1	4	3	0
	4	2	2	2	1	0

→

			⑪	⑪	⑩	
		①	1	1	0	⑩
	4	2	2	~~2~~	~~1~~	0
−		1	2	6	8	3
	4	0	9	5	2	7

6. (a) Sum of two number = 956975

One of the number = 99950

	⑭				
⑧	~~4~~	⑯			
~~9~~	5	~~6~~	9	7	5
–	9	9	9	5	0
8	5	7	0	2	5

Other number =sum of two numbers – one of the number

= 956975 – 99950

= 857025

Answer: Other number is 857025

(b) Total votes candidate 'x' got = 769834

Total votes candidate 'y' got = 637395

768934 > 637395

Candidate 'x' votes > candidate 'y' votes

Number of votes candidate x got than candidate y = Votes of candidate x – votes of candidate y

			⑫		
			⑧	~~2~~	⑭
7	6	8	~~9~~	~~3~~	~~4~~
– 6	3	7	3	9	5
1	3	1	5	3	9

768934 – 637395

= 131539

Candidate x got more votes than candidate y by 132439 votes.

(c) Total bags of grain sold by the government = 850725

Total bags of grain purchased by the government = 408368

Total bags of grain left in the stock: Total boys purchase by the government – Total bags sold by the government

= 850725 – 408368

= 442357

Answer: 442357 bags were left in the stock.

(d) Sum of 88888 and 33333 = 88888 + 33333

= 122221

	①	①	①	①	
	8	8	8	8	8
+	3	3	3	3	3
1	2	2	2	2	1

Number 3676 less than sum of 88888 and 33333

= Sum of 88888 and 33333 – 3676

= 118545

		⑪	⑪	⑪		
	①	~~1~~	~~1~~	~~1~~	⑪	
1	~~2~~	~~2~~	~~2~~	~~2~~	~~1~~	
–		3	6	7	6	
1	1	8	5	4	5	

Answer: 3676 less than sum of 88888 and 33333 is 118545.

Exercise 2.3

1. (a)

		①	①	①		
		④	5	⑤		
			5	6	7	8
×					2	7
		①	①	①		
		3	9	7	4	6
+	1	1	3	5	6	×
	1	5	3	3	0	6

(b)

		③			
		①			
		④	①		
		5	7	2	
×			1	6	2
	①	1	1	4	4
	3	4	3	2	×
+	5	7	2	×	×
	9	2	6	6	4

(c)

			(3)	(2)		
			2	4	3	1
×				2	7	2
	(1)	(1)	(1)	(1)		
			4	8	6	2
	1	7	0	1	7	×
+	4	8	6	2	×	×
	6	6	1	2	3	2

2. (a) 57 × 10 = 570

[When a number is multiplied by 10, We put a zero to the right side of the number]

(b) 808 × 100 = 80800

[When a number is multiplied by 100, We put two zeroes to the right side of the number.]

(c) 5090 × 1000 = 5090000

[When a number is multiplied by 1000] We put three zeroes to the right side of the number

3. (a) 6326 × 80 = <u>80</u> × 6326

(b) 4999 × <u>0</u> = 0

(c)1 × <u>9134</u> = 9134

(d) (708 – 55) × <u>25</u> = 708 × 25 – 55 × 25

4. (a) 735 × 40 = 29400 (iii)

		(3)	(2)		
			7	3	5
×				4	0
			0	0	0
+	2	9	4	0	×
	6	1	2	3	2

(b) 2× 5× 483 = 10 × 483 = 4830 (iv) 4830

(c) 4 × 573 × 25 = 573 × 100 = 57300 (i) 57300

(d) 10 × 3868 ×10 = 3868 × 100 = 386800 (ii)

(e) 900 × 349 = 314100 (vi)

	(4)	(8)		
	3	4	9	
×			9	
3	1	4	1	

(f) 2000× 29 = 58000 (v)

5. (a) 2 × 195 × 5 = 195 × 10 = 1950

(b) 400 × 25 × 4 = 400 × 100 = 40000

(c) 10 × 3364 × 10 = 3364 × 100 = 336400

(d) 4368 × 500 × 2= 4368 × 1000 = 4368000

(e) 4 × 6666 ×25 = 6666× 100 = 666600

(f) 4010 × 50 × 2 = 4010 × 100 = 401000

6. (a) Cost of one bed = ₹4560

Cost of 380 beds = ₹4560 × 38<u>0</u>

= ₹1732800

			(1)	(1)		
			(4)	(4)		
			4	5	6	0
×					3	8
		(1)	(1)			
		3	6	4	8	0
+	1	3	6	8	0	×
	1	7	3	2	8	2

Answer: cost of 380 beds is ₹1732800

(b) Number of days in a year = 365

Number of hours in one day = 24

Number of hours in 365 days = 365 ×24

= 8760 hours

		(1)	(1)		
		(2)	(2)		
		3	6	5	
×			2	4	
	1	4	6	0	
+	7	3	0	×	
	8	7	6	0	

Answer: These are 8760 hours in one year.

(c) Price of one sofa set = ₹2540
Price of 195 sofa sets = ₹2540 × 195
= ₹495300

$$\begin{array}{r} \overset{}{} \overset{}{} \overset{(4)}{} \overset{(3)}{} \overset{}{} \\ \overset{}{} \overset{}{} \overset{(2)}{} \overset{(2)}{} \overset{}{} \\ \overset{}{} \overset{}{} 2 \; 5 \; 4 \\ \times \quad \overset{}{} \overset{}{} 1 \; 9 \; 5 \\ \hline \overset{}{} \overset{}{} \overset{(1)}{} \overset{(1)}{} \overset{}{} \overset{}{} \\ \overset{}{} \overset{}{} 1 \; 2 \; 7 \; 0 \\ \overset{}{} 2 \; 2 \; 8 \; 6 \; \times \\ + \; 2 \; 5 \; 4 \; \times \; \times \\ \hline 4 \; 9 \; 5 \; 3 \; 0 \end{array}$$

Answer: Price of 195 sofa sets is ₹495300.

(d) Number of toys a box contain = 150
Number of a toys boxes brought to the market = 4500
Number of toys brought to the market = Number of toys in the box × Number of boxes brought by the market
= 150 × 4500
= 675000 toys

$$\begin{array}{r} \overset{}{} \overset{(2)}{} \overset{}{} \overset{}{} \\ \overset{}{} \overset{(1)}{} \overset{}{} \overset{}{} \\ \overset{}{} 1 \; 5 \; 0 \\ \times \quad \overset{}{} \overset{}{} 4 \; 5 \\ \hline \overset{}{} 7 \; 5 \; 0 \\ 6 \; 0 \; 0 \; \times \\ \hline 6 \; 7 \; 5 \; 0 \end{array}$$

Answer: 675000 toys were brought to the market.

Exercise 2.4

1. (a)

$$\begin{array}{r} 637 \leftarrow Q \\ 9 \overline{)5736} \\ -\,54\downarrow \\ \hline 33 \\ -\,27\downarrow \\ \hline 66 \\ -\,63 \\ \hline 3 \leftarrow R \end{array}$$

Checking: Dividiend = Quotient × Divisor + Remainder

$$\begin{array}{r} \overset{}{} \overset{(3)}{} \overset{(6)}{} \overset{}{} \\ \overset{}{} 6 \; 3 \; 7 \\ \times \quad \overset{}{} \overset{}{} \overset{}{} 9 \\ \hline 5 \; 7 \; 3 \; 3 \end{array}$$

5736 = 9 × 636 + 3
5736 = 5733 + 3
5736 = 5736

(b)

$$\begin{array}{r} 1149 \leftarrow Q \\ 23 \overline{)26436} \\ -\,23\downarrow \\ \hline 34 \\ -\,23\downarrow \\ \hline 113 \\ -\,92\downarrow \\ \hline 216 \\ -\,207 \\ \hline 09 \leftarrow R \end{array}$$

Checking: Quotient × Divisor + Remainder

$$\begin{array}{r} \overset{}{} \overset{}{} \overset{(1)}{} \overset{}{} \\ \overset{}{} \overset{(1)}{} \overset{(2)}{} \overset{}{} \\ \overset{}{} 1 \; 1 \; 4 \; 9 \\ \times \quad \overset{}{} \overset{}{} 2 \; 3 \\ \hline \overset{}{} \overset{(1)}{} \overset{(1)}{} \overset{}{} \\ \overset{}{} 3 \; 4 \; 4 \; 7 \\ + \; 2 \; 2 \; 9 \; 8 \; \times \\ \hline 2 \; 6 \; 4 \; 2 \; 7 \end{array}$$

26436 = 23 × 1149 + 9
26436 = 264297 + 9
26436 = 26436

(c)

$$\begin{array}{r} 42 \leftarrow Q \\ 43 \overline{)1834} \\ -\,172\downarrow \\ \hline 114 \\ -\,86 \\ \hline 28 \leftarrow R \end{array}$$

Checking: Dividend = Divisor × Quotient + Remainder

$$\begin{array}{rcccc} & & (1) & \\ & & 4 & 3 \\ \times & & 4 & 2 \\ \hline & (1) & & \\ & & 8 & 6 \\ + & 1 & 7 & 2 \times \\ \hline & 1 & 8 & 0 & 6 \end{array}$$

$1834 = 43 \times 42 + 28$

$1834 = 1806 + 28$

$1834 = 1834$

(d)
$$\begin{array}{r} 458 \leftarrow Q \\ 192\overline{)88004} \\ -\ 768 \\ \hline 1120 \\ -\ 960 \\ \hline 1604 \\ 1536 \\ \hline 68 \leftarrow R \end{array}$$

Checking: Dividend = Divisor × Quotient + Remainder

$$\begin{array}{rcccc} & & & (3) & \\ & & (4) & (1) & \\ & & (7) & (1) & \\ & & 1 & 9 & 2 \\ \times & & 4 & 5 & 8 \\ \hline & (1) & & & \\ & 1 & 5 & 3 & 6 \\ & 9 & 6 & 0 \times & \\ + & 7 & 6 & 8 \times & \times \\ \hline & 8 & 7 & 9 & 3 & 6 \end{array}$$

$88004 = 192 \times 458 + 68$

$88004 = 87936 + 68$

$88004 = 88004$

2. (a) Dividend = Divisor × Quotient + Remainder

$$\begin{array}{rcccc} & & & (2) & \\ & & 4 & 0 & 3 \\ \times & & 8 & 0 & 1 \\ \hline & & 4 & 0 & 3 \\ & 0 & 0 & 0 \times & \\ + & 3 & 2 & 2 & 4 \times \times \\ \hline & 3 & 2 & 2 & 8 & 0 & 3 \end{array}$$

Divided = $403 \times 801 + 325$

Divided = $322803 + 325$

Divided = 323128

(b) Dividend = Divisor × Quotient + Remainder

$$\begin{array}{rcccc} & & (2)(4) & \\ & & (1)(3) & \\ & & 1 & 3 & 6 \\ \times & & & 7 & 5 \\ \hline & (1)(1) & & & \\ & & 6 & 8 & 0 \\ + & & 9 & 5 & 2 \times \\ \hline & 1 & 0 & 2 & 0 & 0 \end{array}$$

$10231 = 136 \times 75 + 31$

$10231 = 10200 + 31$

$10231 = 10231$

3. (a) $567 \div 567 = \underline{1}$

(b) $3736 \div \underline{1} = 3736$

(c) $\underline{6574} \div 6574 = 1$

4. (a) 54363 ÷ 100, (iii) Q= 543, R= 63 [When a number is divided by 100, the number formed by tens and ones digits of the dividend become the remainder and the number formed by the rest of the digits becomes the quotient.]

(b) 43033 ÷ 100, (i) Q= 430, R = 33 [When a number is divided by 100, the number formed by tens and ones digits of the dividend become the remainder and the number formed by the rest of the digits becomes the quotient.]

(c) 921735 ÷1000, (v) Q= 921, R = 735 [When a number is divided by 1000, the number formed by hundreds, tens and ones digits of the dividend becomes the remainder and the number fromed by the rest of the digits becomes the quotient.]

(d) 82824 ÷ 100, (vi) Q= 828 , R = 24 [When a number is divided by 100, the number formed by tens and ones digits of the dividend become the remainder and the number formed by the rest of the digits becomes the quotient.]

(e) 4876 ÷10, (ii) Q= 487, R= 6 [When a number is divided by 10, the ones digit of the dividend become the remainder and the number formed by the rest of the digits becmes the quotient.]

(f) 697770 ÷ 100, (iv) Q = 6977, R = 70 [When a number is divided by 100, the number formed by tens and ones digits of the dividend become the remainder and the number formed by the rest of the digits becomes the quotient.]

5. (a) Total money contributed to the charity fund: Rs 98762

Number of people charity will be used for: Rs 437

Money used for each person : Total money ÷ number of people

= Rs 98762 ÷ 437

= Rs 226

226 ←Q

437) 98762
− 874
1136
− 874
2622
− 2622
0 ←R

Answer: Rs 226 will be used for each person.

(b) Product of two numbers = 332878

One of the number = 826

Second number = Product of numbers ÷ one of the numbers

403 ←Q

826) 332878
− 3304
2478
− 2478
0 ←R

= 332878 ÷ 826

= 403

Answer: The second number is 403.

(c) Number of phone sets = ₹130

Cost of phone sets = ₹299520

Cost of 1 phone set = Cost of phone sets ÷ Number of phone sets

2304 ←Q

130) 299520
− 260
395
− 390
520
− 520
0 ←R

= 299520 ÷ 130

= ₹2304

Answer: Cost of 1 phone set is ₹2304

Exercise 2.5

1. (a) Sum of money = ₹120 + ₹56 + ₹108 + ₹32

= ₹316

	①	①	
	1	0	8
		5	6
	1	2	0
+		3	2
	3	1	6

Number of money = 4

Average = $\frac{\text{Sum of money}}{\text{Number of money}} = \frac{316}{4}$ = ₹79

(b) Total time = 8 hours + 9 hours + 13 hours = 30 hours

Number of time = 3

Average = $\frac{\text{Total time}}{\text{Number of time}} = \frac{30}{3}$ = 10 hours

2. First six even numbers = 2, 4, 6, 8, 10 and 12

Sum of first six even numbers = 2 + 4 + 6 + 8 + 10 + 12

= 42

Average = $\frac{\text{Sum of six first even Number}}{\text{Number of six first even Number}}$

= $\frac{42}{6}$ = 7

(b) First eight whole numbers = 0, 1, 2, 3, 4, 5, 6, 7

Sum of first eight whole numbers = 0 + 1 + 2 + 3 + 4 + 5 + 6 + 7 = 28

Average = $\frac{\text{Sum of first of whole numbers}}{\text{Number of whole numbers}}$

Average = $\frac{28}{8}$ = 3.5

(c) First 3 two digit numbers = 10, 11, 12

Sum of first 3 two digit numbers =10 + 11 + 12

= 33

Average = $\frac{\text{Sum of three two digit numbers}}{\text{Number of two digit number}}$

= $\frac{33}{3}$ = 11

(d) First three odd 3-digit numbers = 101, 103, 105

Sum of first three odd 3-digit numbers = 101 + 103 + 105

= 309

Average = $\frac{\text{Sum of first three odd digit numbers}}{\text{Number of first three odd digit number}}$

= $\frac{309}{3}$ = 103

3. Total numbers = 5

Sum of numbers = 3840

Average = $\frac{\text{Sum of numbers}}{\text{Total numbers}} = \frac{2840}{5}$ = 768

4. Sum of number =Rs 110 + 70 + 80 + 95 + 57 + 12 + 140 = ₹672

Number of days = 7

Average income = $\frac{\text{Sum of income}}{\text{number of days}} = \frac{672}{7}$ = Rs 96

5. Total marks obtained by Ananya = 460

Number of subjects = 4

Average marks = $\frac{\text{Total marks}}{\text{Number of subjects}}$

= $\frac{460}{4}$ = 115

6. Let the number of students present on Friday be x

Number of students present from Monday to Friday = 725 + 635

= 735 + 625+ x

= 2720 + x

Number of days = 5

Average = $\frac{\text{Total number of students present from Monday to friday}}{\text{Number of days}}$

700 = 2720 + x ÷ 5

2720 + x = 700 × 5

2720 + x = 3500

X= 3500 – 2720

X= 780

Answer: 780 student were present on Friday.

Exercise 2.6

1. (a) 11 kg for Rs 33 or 20 kg for Rs 70

Price for 1 = 33 ÷ 11 or 70÷ 20

= 3 or 3.5

= 3 < 3.5

Hence, 11 for Rs 33 is a better buy.

(b) 4 kg for Rs 80 or 8 kg for Rs 150

80 ÷ 4 or 150 ÷ 8

20 or 18.75

20 > 18.75

Hence , 8 kg for Rs 150 is a better buy.

(c) 8 kg for Rs 124 or Rs 13 for 208

124 ÷ 8 or 208 ÷ 13

15.5 or 16

15.5 < 16

Hence, 8 kg for Rs 124 is a better buy.

(d) 12 kg for Rs 504 or 18 kg for Rs 684

504 ÷ 12 or 684 ÷ 18

42 or 38

42 >38

Hence , 18 kg for Rs 684 is a better buy.

2. (a) Number of pens = 5

Cost of pens = Rs 20

Cost of one pen = cost of pen ÷ number of pens

= ₹20 ÷ 5

= ₹4

(i) Cost of 8 pens = cost of 1 pen × 8

= ₹4 × 8

= ₹32

(ii) Cost of 15 pens = cost of one pen x 15

= ₹4 × 15

= ₹60

(b) Number of oranges = 35

Cost of oranges = ₹210

Cost of one orange = cost of oranges ÷ number of oranges = ₹210 ÷ 35

= ₹6

```
      6   ←Q
35 ) 210
   − 210
   ----
     0   ←R
```

Cost of 15 oranges = Cost of one orange × 15

= Rs 6 ×15 = ₹90

(c) Weight of potatoes = 12kg

Cost of potatoes = ₹72

Cost of 1 kg potato = weight of potatoes ÷ cost of potatoes

= ₹72 ÷ 12

= 6

```
      6   ←Q
12 ) 72
   − 72
   ----
     0   ←R
```

Cost of 27 kg of potatoes = cost of one kg of potato × 27

```
      (4)
       2  7
×      6
-------------
   1  6  2
-------------
```

= ₹6 × 27

= ₹162

(d) Total money earned = Rs 45000

Number of months = 9

Money earned in one month = Total money earned ÷number of months

= ₹45000 ÷ 9

= ₹5000

One year = 12 months ∴ 2 years = 2×12 months = 24 months

Money earned in 2 years = money earned in one month ×months in two years

= ₹5000 × 24

= ₹120000

```
      (2)
       2  4
×      5
-------------
   1  2  0
-------------
```

Answer: He will earn 120000 in2 years.

(e) Quantity of milk = 12 litres

Cost of milk = ₹432

Cost of 1 litre of milk = cost of milk ÷ quantity of milk

= ₹432 ÷ 12

= ₹36

```
     36   ←Q
12 ) 432
   − 36↓
   ----
     72
   − 72
   ----
     0   ←R
```

Cost of 35 litres of milk = cost of one litre of milk × 35

$$\begin{array}{r} \overset{\textcircled{1}}{} \\ \overset{\textcircled{3}}{} \\ 36 \\ \times\ 35 \\ \hline \overset{\textcircled{1}}{} \\ 180 \\ +\ 1080\times \\ \hline 1260 \end{array}$$

= ₹36 × 35

= Rs 1260

Exercise 2.7

1. (a) C.P = ₹628 , SP = ₹665

628 < 665, CP < SP

Therefore, profit.

(b) C.P = ₹287, Sp = ₹297

₹287 < ₹297

CP < SP

Therefore, profit

(c) CP = ₹945, SP= ₹895

₹945 > ₹895

CP > SP

Therefore, loss

2.

S.no	CP	SP	Profit or Loss	Amount
(a)	₹4075	₹ 4500	SP > CP , therefore profit	₹4500 – ₹4075 = ₹4.25
(b)	₹159.60	₹ 152.75	CP > SP therefore loss	₹159.60 – ₹152.75 = ₹6.85
(c)	₹ 258445	₹ 39995	CP > SP therefore loss	₹ 258445 – ₹ 39995 = 218,450
(d)	₹ 75500	₹ 83,695	SP > CP therefore loss	₹83695 – ₹75500 = ₹8195

3. Cost price of television = ₹7500

Selling price of telelvision = ₹5995

₹7500 > ₹5995

Cost price > Selling price

Therefore, It is a loss

Loss Amount = Cost price – Selling price

= ₹7500 – Rs 5995

= ₹1505

Answer: Bindra made a loss of ₹1505

4. Cost price of table = ₹3500

Selling price of table = ₹4500

3500 < 4500

Cost price < selling price

Therefore, It is a profit

Profit = ₹(4500 – 3500)

= ₹1000

Answer: Carpenter has made profit of ₹1000.

Exercise 2.8

1. (a) CP = ₹7420, Profit = 595

Profit = CP – SP

SP = Profit + CP

SP= ₹595 + ₹7420

SP = ₹8015

(b) CP = ₹1744 , Loss = ₹195

Loss = CP – SP

SP = CP – Loss

SP = ₹1744 – ₹195

SP = ₹1549

(c) SP = ₹9754, LOSS = ₹159

LOSS = CP – SP

CP = Loss + SP

= ₹159 + ₹9754

= ₹9913

(d) SP = Rs 25, 790 , Profit = RS 4250

Profit = SP – CP

CP = SP – Profit

CP = Rs 25790 – RS 4250

CP = Rs 21540

2.

S.No	CP(₹)	SP (₹)	Profit or Loss	Amount (₹)
(a)	85.75	15.50	CP > SP loss	85.75 – 15.50 = 7025
(b)	122.95	275.50	CP < SP profit	152.75
(c)	23695	22145	CP > SP loss	1550
(d)	99995	74990	CP > SP loss	25005

(b) Profit = SP – CP

SP = CP + Profit

SP = ₹122.95 + ₹152.75

SP = ₹275.70

(c) Loss = CP – SP, SP = CP – Loss

SP = 23, 695 – 1550

SP = ₹22145

(d) Loss = CP – SP

SP = CP – Loss

SP = ₹74990

3. (b) Profit = SP – CP

CP = SP – Profit

CP = ₹55950 – ₹52.51

CP = ₹506.99

(c) Loss = CP – SP

CP = SP + Loss

CP = ₹52500 + 3540

CP = ₹56040

(d) Profit = SP – CP

CP = SP – Profit

CP = Rs 10450 – Rs 635

CP = Rs 9765

4. Profit gained on sofa set = Rs 3200

Selling price of sofa set = Rs 43455

Profit = SP – CP

CP = SP – profit

Cp = Rs 43455 – Rs 3200

Cp = Rs 40255

Answer: Cost price of sofa set is Rs 40225

5. Cost price of tennis balls = 3450

Profit Salman want to make = Rs 550

Profit = SP –CP

SP = Profit + CP

SP = Rs 550 + RS 3450

SP = Rs 4000

Answer: in order to make Rs 550 profit on tennis balls Salman has to sell then at Rs 400.

6. (a) CP = Rs 85, SP = Rs 90

(b) CP = Rs 55, SP = 63

(c) SP = Rs 180, CP = RS 195

7.

	Cost Price	**Selling Price**	**Comparison**	**Profit and Loss**
(a)	₹23	₹30	₹23 < ₹30 , CP < SP	Profit
(b)	₹55	₹48	₹55 > ₹48 , CP > SP	Loss
(c)	₹190	₹188.50	₹190 > ₹188.50, CP > SP	Loss
(d)	₹268	₹258	₹268 > ₹258, CP > SP	Loss
(e)	₹1540	₹1820	₹1540 < ₹1820, CP < SP	Profit
(f)	₹6273	₹5690	₹6273 > ₹5693, CP >SP	Loss
(g)	₹1043	₹2010	₹1043 < ₹2010, CP < SP	Profit

8. (a) Loss = CP – SP

CP = Loss + SP

CP = ₹300 + 35

CP = ₹335

(b) Profit = SP – CP

SP = CP + Profit

SP = ₹1550 + ₹90

SP = ₹1640

(c) Profit = SP – CP

CP = SP – Profit

CP = ₹1820 – ₹160

CP = ₹1660

(d) Loss = CP – SP

SP = CP – Loss

SP = ₹12240 – ₹1210

SP = ₹11030

(e) Profit = SP – CP

CP = SP – Profit

CP = ₹3365 – ₹485

CP = ₹2880

(f) Loss = CP – SP

SP= CP – Loss

SP = ₹9000 – ₹320

SP = ₹8680

9.

	(a)	(b)	(c)	(d)
Cost Price	₹94	₹64	₹625.75	₹426.25
Selling Price	₹105	₹58	₹987	₹412.50
Profit and Loss	SP >CP Therefore, Profit	CP > SP Therefore, Loss	CP < SP Therefore, Profit	C.P >SP Therefore, Loss

10. Cost Price Of Table : ₹705

Selling Price Of Table : ₹755

Profit: Selling Price – Cost Price = ₹755 – ₹705 = ₹50

Answer: Mina Made Profit Of Rs 50 on table.

11. Cost Price of Old Car = ₹4500

Repairing Cost of Old Car = ₹625

Selling Price of Old Car = ₹49995

Total CP = CP + Repairing Cost

Total CP = 45000 + 625

Total CP = ₹45625

45625 < 49995

CP < SP

Therefore, Profit

Profit = SP – CP, 49995 – 45625

= ₹4370

Answer: Shikhar had a profit of ₹4370.

12. Cost Price of Cow = ₹5490

Money Spent on Transportation = ₹240

Selling Price of Cow = ₹5509

Total Cost Price = CP + Transportation Price

Total Cost Price = ₹5490 + ₹240

= ₹5730

₹5509 < ₹5730, SP < CP

Loss = CP – SP

₹5730 – ₹5509 = ₹221

Answer: Rahul Had a loss of ₹221 on Cow.

13. Cost Price of Table fan = ₹1294

Loss on Table Fan = ₹176

Loss = CP – SP

SP = CP – Loss

SP = ₹1294 – ₹176

SP = ₹1118

Answer: Selling Price of Table fan is ₹1118.

Learning Updates

1. (a)

	①	①	①	①	①	
	9	9	7	3	6	4
+	3	4	5	6	4	8
1	3	4	3	0	1	2

(b)

	①	①	①	②	①	
	5	3	4	6	8	6
	3	6	4	3	8	5
+		6	4	3	6	5
	9	6	3	4	3	6

(c)

	①	①	①	①	①	
	5	7	3	6	4	8
		2	4	7	3	6
+		3	6	4	8	3
	6	3	4	8	6	7

2. (a)

		⑫	⑮	⑬		
	⑧	~~2~~	~~5~~	~~3~~	⑬	
	~~9~~	~~3~~	~~6~~	~~4~~	~~3~~	6
−		5	6	4	8	3
	8	7	9	9	5	3

(b)

		⑬	⑫	⑮		
	⑤	~~3~~	~~2~~	~~5~~	⑩	
	~~6~~	~~4~~	~~3~~	~~6~~	~~0~~	9
−	2	7	3	6	8	6
	3	6	9	9	2	3

(c)

		⑯	⑮	⑫	⑰	
	③	~~6~~	~~5~~	~~2~~	~~7~~	⑯
	~~4~~	~~7~~	~~6~~	~~3~~	~~8~~	~~6~~
−	1	9	9	9	9	9
	2	7	6	3	8	7

3. (a)

		⑦	⑭			
	8	~~8~~	~~4~~	6	4	8
−		2	6	4	3	6
	8	5	8	2	1	2

→

				⑪	⑩	
	⑦	⑮	⑦	~~1~~	0	⑫
	~~8~~	~~5~~	~~8~~	~~2~~	~~1~~	~~2~~
−		8	3	6	4	5
	7	7	4	5	6	7

(b)

	⑧	⑭		⑥	⑬	
	~~9~~	~~4~~	8	~~7~~	~~3~~	6
−		5	6	4	7	6
	8	9	2	2	6	0

→

	①			①		
	8	9	2	2	6	0
+		1	1	6	4	5
	9	0	3	9	0	5

4. (a)

				①		
			①	①	①	
			①	②	①	
			4	3	6	4
×				2	3	4
		①	①	②		
			1	7	4	5	6
		1	3	0	9	2	×
+	8	7	2	8	×	×	
	10	2	1	1	7	6	

(b)

				②		
			4	0	4	0
×				1	5	2
		①				
			8	0	8	0
	2	0	2	0	0	×
+	4	0	4	0	×	×
	6	1	4	0	8	0

(c)

			6	8	6	8
×				1	1	1
	①	②	②	①		
			6	8	6	8
		6	8	6	8	×
+	6	8	6	8	×	×
	7	6	2	3	4	8

5. (a)

```
      3104
   8 ) 24836
     - 24
     -----
       08
      - 8
      ----
        036
       - 32
       ----
          4
```

Divided = Divisor × Quotient + Remainder

```
        (3)
     3  1  0  4
×                8
-----------------
  2  4  8  3  2
```

24836 = 8 × 313 + 4

24836 = 24832 + 4

24836 = 24836

(b)

```
      2611
  36 ) 94000
     - 72
     ----
       220
     - 216
     -----
        40
      - 36
      ----
        40
      - 36
      ----
         4
```

Dividend = Divisor × Quotient + Remainder

```
        (1)
        (2)
     2  6  1  1
×              3  6
-----------------
     (1)
  1  5  6  6  6
+ 7  8  3  3  ×
-----------------
  9  3  9  9  6
```

94000 = 36 × 261 + 4

94000 = 93196 + 4

94000 = 94000

(c)

```
      379
  145 ) 55000
     - 435
     -----
      1150
    - 1015
    ------
       1350
     - 1305
     ------
         45
```

```
        (3) (3)
        (3) (4)
           3  7  9
×          1  4  5
-----------------
     (1) (1) (1)
     1  8  9  5
  1  5  1  6  ×
+ 3  7  9  ×  ×
-----------------
  5  4  9  5  5
```

Dividend = Divisor × Quotient + Remainder

55000 = 379 × 145 + 45

55000 = 54955 + 45

55000 = 55000

6. Number should be added to 756483 to get 954961

954961 – 75648

= 198000

```
        (14)
  (8) (4) (14) (8) (5) (11)
   9   5   4   9   6   X
-  7   5   6   4   8   3
-----------------------
   1   9   8   4   7   8
```

Answer: 198478 should be added to 756483 to get 954961

7. Sum of numbers = 64 + 93 + 126 + 275 + 386

= 944

$$\text{Average} = \frac{\text{Sum of numbers}}{\text{Total numbers}} = \frac{944}{5} = 188.8$$

8. Largest 4 digit number = 9999

Smallest 3 digit number = 100

Product of largest 4 digit number and smallest 3 digit number

= 9999 × 100

= 999900

9. Pages read on first day : 36

Pages read on second day: 48

Pages read on third day: 90

Total pages read 36 + 48 + 90 = 174

$$\frac{\text{Total pages read}}{\text{Number of days}} = \frac{174}{3} = 58$$

```
    58
3 ) 174
  - 15↓
  ----
    24
  - 24
  ----
     0
  ----
```

Answer: 58 pages are read by Somya on daily basis.

10. Cost of 1 mobile = Rs 8950

Cost of 46 such mobiles = Cost of 1 mobile × 46

₹8750 × 46 = ₹411700

```
      (3)(2)
      (5)(3)
       8 9 5 0
×          4 6
-----------------
   (1)(1)
     5 3 7 0 0
+ 3 5 8 0 0 ×
-----------------
  4 1 1 7 0 0
-----------------
```

Answer: Cost of 46 such mobiles is Rs 411700

Multiple Choice Questions

1. 936 × 500 × 0 = 0

[Product of any number with 0 is always with 0 is always 0]

Answer: (b) 0

2. Smallest 4 digit number = 1000

Smallest 5 digit number = 10,000

Smallest 6 digit number = 100000

Sum of smallest 4 digit number , 5 digit number and 6 digit number

= 1000 + 10,000 + 100000

= 111000

= **Answer:** (d) 111000

```
    1 0 0 0 0 0
    1 0 0 0 0 0
+       1 0 0 0
-----------------
  1 1 1 0 0 0
-----------------
```

3. 986200 ÷ 100 = 9862 [When a number is divided by 100, the number formed by tens and ones digits of the dividend become the remainder and the number formed by the rest of the digits becomes the quotient.]

Answer: (b) 9862

4. 3 Lakh +12 Ten Thousand = 300000 + 120000 = 420000

Answer: (d) None of these

5. (60 + 40) × 300 = 100 × 300 = 30,000

(b) 30000

6. 493685 ÷ 100, R = 685 [When a number is divided by 1000, the number formed by hundreds, tens and ones digits of the dividend becomes the remainder and the number fromed by the rest of the digits becomes the quotient.]

Answer: (a) 685

Skills Check

1. (a)
$$
\begin{array}{r}
1226 \\
3\,\boxed{2}\boxed{9}\overline{)\,403354} \\
-\,\boxed{3}\,29\downarrow \\
\hline
743 \\
-\,658\downarrow \\
\hline
855 \\
-\,658\downarrow \\
\hline
1974 \\
-\,1974 \\
\hline
0
\end{array}
$$

(b)
$$
\begin{array}{r}
\boxed{2}\boxed{7}\boxed{9}\boxed{7} \\
124\overline{)\,346896} \\
-\,248\downarrow \\
\hline
988 \\
-\,\boxed{8}\boxed{6}\boxed{8}\downarrow \\
\hline
120\boxed{9} \\
-\,1116\downarrow \\
\hline
93\boxed{6} \\
-\,868 \\
\hline
68
\end{array}
$$

2. Number of pages read by Ranjan in 1 day = 800

Number of pages read by Apurv in 2 days = 1872

Number of pages read by Arshat in 16 hours = 940

Who read the fastest: $\frac{800}{24}$ (1 day = 24 hours)

$\frac{1872}{48}$ (2 days = 48 hours), = $\frac{940}{16}$

$\frac{940}{16} > \frac{1872}{48} > \frac{800}{24}$ [Arshat > Ranjna]

Hence, Arshat read the fastest.

3 Simplifications

Exercise 3.1

1. 1. $18 + 20 \div 4$

$18 + 5 = 23$

2. $15 \times 10 \div 2$

$15 \times 5 = 75$

3. $32 - 8 \times 2$

$32 - 16 = 16$

4. $16 - 16 \div 2 - 3$

$16 - 8 - 3 = 16 - 11 = 5$

5. $37 - 6 \times 4 + 32 \div 4$

$37 - 24 + 8$

$13 + 8 + 21$

6. $8 \times 13 - 4 \times 15$

$104 - 60 = 44$

7. $96 \div 16 + 34 \times 10 - 13$

$6 + 340 - 3 = 346 - 13$

$= 333$

8. $38 - 28 + 36 \div 2$

$38 - 28 + 18 = 28$

9. $70 \div 14 \times 6 - 10 \div 5 + 1$

$5 \times 6 - 2 + 1$

$= 30 - 2 + 1 = 29$

Exercise 3.2

1. (a) $80 - \frac{1}{10}$ of $70 + 40 \div 4 - 3 \times 6$

$80 - (70 \div 10) + 10 - 18$

$80 - 7 + 10 - 18$

$90 - 25 = 65$

(b) $70 + 2 \times 5 + \frac{1}{3}$ of $15 - 60 \div 6$

$70 + 10 + 15 \div 3 - 10$

$70 + 10 + 5 - 10$

$= 75$

2. (a) $(5 + 4) \div 3 + 12 - 5 \times 2$

$9 \div 3 + 12 - 10$

$3 + 2 = 5$

(b) $20 - (10 + 2) \div 3 + \frac{1}{2}$ of 4

$20 - (12) \div 3 + 4 \div 2$

$20 - 4 + 2$

$= 18$

(c) $12 \div (2 \times 3) + \frac{1}{6}$ of $36 - 8$

$12 \div 6 + (36 \div 6) - 8$

$2 + 6 - 8$

$8 - 8$

$= 0$

(d) $20 \times (\frac{1}{5}$ of $25) - 100 \div (10 \times 10)$

$20 + (25 \div 5) - 100 \div (100)$

$20 + 5 - 1$

$25 - 1 = 24$

Learning updates

1 (a) $(17 - 7) \times 5$

(b) $(26 + 8) - 9$

(c) $36 \div (13 - 7)$

(d) $(16 + 8) \div (9 - 3)$

2. (a) $5 - 6 + 8$

$= 13 - 6 = 7$

(b) $8 \times 9 \div 3$

$8 \times 3 = 24$

(c) $4 + 4 + 4 \times 4 + 4$

$4 + 4 + 16 + 4$

$= 28$

(d) $100 + 50 \times 2$

$100 + 100$

$= 200$

(e) $15 \times 5 - 60 \div 15$

$75 - 4$

$= 71$

(f) $26 + 9 \times 8 \div 2 - 3$

$= 26 + 9 \times 4 - 3$

$= 26 + 36 - 3$

$= 26 + 33 = 59$

3. (a) $280 + 153 \div 17 - 8 \times 26$

$280 + 9 - 208$

$289 + (-208)$

$= 81$

(b) $\frac{5}{6}$ of $36 \div (4 + 1) - 2 + 15$

$(36 \div 6) \times (5) - 2 + 15$

$6 \times 5 \div (5) - 2 + 15$

$6 \times 1 - 2 + 15$

$= 6 - 2 + 15 = 19$

Multiple Choice Question

1. (d) ÷

2. $100 \div 10 + 10 \times 1$

$= 10 + 10$

$= 20$

(a) 20

3. $49 \div 7 \times 7 + 5 \times 3 - 2$

$7 \times 7 + 15 - 2$

$= 49 + 13$

$= 62$

(d) 62

Skills Check

1. (a) $125 \boxed{\div} 25 + 3 \times 10 = 35$

$5 + 30 = 35$

$35 = 35$

(b) $78 \div 3 \boxed{+} 16 - 4 = 38$

$36 + 12 = 38$

$38 = 38$

(c) $20 \boxed{+} 5 \times 6 - 30 \div 6 = 45$

$20 + 30 - 5 = 45$

$5 - 5 = 45$

$45 = 45$

(d) $46 \div 2 \boxed{-} 8 \times 2 = 7$

$23 - 16 = 7$

$7 = 7$

4 Multiples and Factors

Get Started

Item	Quantity	Price (₹)	Total (Quantity × Price)
Pencil	12	8	96
Pen	14	17	238
Oil pasttels	5	175	875
Paint Colour	7	195	1365
Notebooks	19	250	4750
			₹7324

Exercise 4.1

1. (a) 16: 16 × 1 = 16, 16 × 2 = 32, 16 × 3 = 48, 16 × 4 = 64, 16 × 5 = 80

(b) 18: 18 × 1 = 18, 18 × 2 = 36, 18 × 3 = 54, 18 × 4 = 72, 18 × 5 = 90

(c) 24: 24 × 1 = 24, 24 × 2 = 48, 24 × 3 = 72, 24 × 4 = 96, 24 × 5 = 120

(d) 70: 70 × 1 = 70, 70 × 2 = 140, 70 × 3 = 210, 70 × 4 = 280, 70 × 5 = 350

(e) 155 = 115 × 1 = 115, 115 × 2 = 230, 115 × 3 = 345, 115 × 4 = 460, 115 × 5 = 575

2. (a) 8 × 126 = 1008

(b) 10 × 241 = 2410

(c) 12 × 100 = 1200

(d) 9 × 2 = 18, 9 × 4 = 36, 9 × 6 = 54, 9 × 8 = 72, 9 × 10 = 90

(e) 11 × 1 = 11, 11 × 3 = 33, 11 × 5 = 55, 11 × 7 = 77, 11 × 9 = 99

3. (a) 19 × 1 = 19, 19 × 2 = 38, 19 × 3 = 57, 19 × 4 = 76, 19 × 5 = 95

(b) 15 × 7 = 105, 15 × 8 = 120 , 15 × 9 = 135, 15 × 10 = 150, 15 × 11, 165, 15 × 12 = 180, 15 × 13 = 195

(c) 17 × 9 = 153

(d) 20 × 1 = 20, 20 × 2 = 40, 20 × 3 = 60, 20 × 4 = 80

4. (a) No, as 246 is not completely divisible by 16

```
   15
16)246
 - 16
   86
 - 80
    6
```

(b) Yes, as 999 is completely dividible by 9

```
   111
9)999
 - 9
   09
 - 9
   09
 - 9
    0
```

Exercise 4.2

1. (a) 1 × 28 = 28

2 × 14 = 28

7 × 4 = 28

Factors

Factors of 28 are: 1, 2, 4, 7, 14 and 28

(b) 1 × 40 = 20

2 × 20 = 40

5 × 8 = 40

10 × 4 = 40

Factors

Factors of 40 are 1, 2, 5, 4, 8, 10, 20 and 40

(c) 1 × 72 = 72

2 × 36 = 72

3 × 24 = 72

4 × 18 = 72

6 × 12 = 72

8 × 9 = 72

Factors

Factors of 72: 1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36 and 72

(d) $1 \times 120 = 120$
$2 \times 60 = 120$
$3 \times 40 = 120$
$4 \times 30 = 120$
$5 \times 24 = 120$
$6 \times 20 = 120$
$8 \times 15 = 120$
$10 \times 12 = 20$
Factors

Factors of 120: 1, 2, 3, 4, 5, 6, 8, 10, 12, 15, 20, 24, 30, 40, 60 and 120.

2. (a)

```
   15        9         3         5
3)45      5)45     15)45     9)45
 -3       -45       -45       -45
 15         0         0         0
-15
  0
```

Factor of 45: 1, 3, 5, 9, 15 and 45

(b)

```
   62        31        4
3)124     4)124     31)124
 -12       -12       -124
 04        04          0
 -4        -4
  0         0

    2
62)124
 -124
    0
```

Factor of 124 are 1, 2, 4, 31, 62 and 124

(c)

```
  100       50        40        25
2)200     4)200     5)200     8)200
 -2        -20       -20       -16
  00        00        00        40
                                -40
                                  0

    5         4         2
40)200    50)200   100)200
 -200      -200      -200
    0         0         0
```

Factors of 200 are 1, 2, 4, 5, 8, 40, 50 100 and 200

(d)

```
   115       69        23
3)345     5)345    15)345
 -3        -30       -30
 04        45        45
 -3        -45       -45
 15          0         0
-15
  0

    15        5         3
23)345    69)345   115)345
 -23       -345      -345
 115         0         0
-115
   0
```

Factors of 345 are 1, 3, 5, 15, 23, 69, 115 and 345.

3. (a) Number itself
(b) 1
(c) 2
(d) 1

4. (a)

```
   15
8)124
 -8
 44
-40
  4
```

No, 8 is not a factor of 124 as 124 is not totally divisible by 8.

(b)

```
   23
16)368
 -32
 48
-48
  0
```

Yes, 368 is a factor of 16 as 368 is completely divisble by 16.

(c)

```
   15
24)360
 -24
 120
-120
   0
```

Yes, 360 is a factor of 24 as 360 is completely divisible by 24.

(d)
$$\begin{array}{r} 9 \\ 21\overline{)\,193} \\ -\,189 \\ \hline 04 \end{array}$$

Number, 193 is not a fctor of 21 as 193 is not complete divisible by 21.

Exercise 4.3

1.

	No.	Sum of the digit	Is the sum divisible by 3	Divisible by 3	Is the sum divisible by 9	Divisible by 9	Ones and tens digits	Ones and tens digit divisible by 4	Divisible by 4	Divisible by 2 and 3	Divisible by 6
(a)	357	3 + 5 + 7 = 15	Yes	Yes	No	No	57	No	No	No	No
(b)	605	6 + 0 + 5 = 11	No	No	No	No	05	No	No	No	No
(c)	420	4 + 2 + 0 = 6	Yes	Yes	No	No	20	Yes	Yes	Yes	Yes
(d)	543	5 + 4 + 3 = 12	Yes	Yes	No	No	43	No	No	No	No
(e)	8842	8 + 8 + 4 + 2 = 22	No	No	No	No	42	No	No	No	No
(f)	2656	2 + 6 + 5 + 6 = 20	No	No	No	No	56	Yes	Yes	No	No
(g)	3295	3 + 2 + 9 + 5 = 19	No	No	No	No	95	No	No	No	No
(h)	7693	7 + 6 + 9 + 3 = 25	No	No	No	No	93	No	No	No	No

	No.	Number at ones place	Even number at ones place	Divisible by 2	0 or 5 at ones place	Divisible by 5	0 at one place	Divisible by 10
(a)	357	7	No	No	No	No	No	No
(b)	605	5	No	No	Yes	Yes	No	No
(c)	420	0	Yes	Yes	Yes	Yes	Yes	Yes
(d)	543	3	No	No	No	No	No	No
(e)	8842	2	Yes	Yes	No	No	No	No
(f)	2656	6	Yes	Yes	No	No	No	No
(g)	3295	5	No	No	Yes	Yes	No	No
(h)	7693	3	No	No	No	No	No	No

Hence,

S.no	No.	Divisible by						
		2	3	4	5	6	9	10
(a)	357	×	✓	×	×	×	×	×
(b)	605	×	×	×	✓	×	×	×
(c)	420	✓	✓	✓	✓	✓	×	✓
(d)	543	×	✓	×	×	×	×	×
(e)	8842	✓	×	×	×	×	×	×
(f)	2656	✓	×	✓	×	×	×	×
(g)	3295	×	×	×	✓	×	×	×
(h)	7693	×	×	×	×	×	×	×

Exercise 4.4

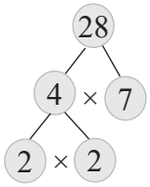
1. (a) 2
(b) No
(c) 2
(d) 97
(e) Yes

2. (a) 97
(b) **5** + **7** = 12
(c) 90, 91, 92, 93, 94, 95 and 96

3. (a) **5** + **11** = 6
(b) **13** + **11** = 24
(c) **19** + **13** = 32
(d) **13** + **23** = 36
(e) **13** + **79** = 92
(f) **13** + **59** = 72

4. (a) 28

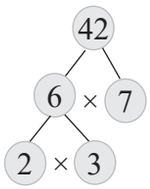
2	28
2	14
7	7
	1



28 = 2 × 2 × 7

(b) 42

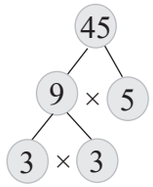
2	42
3	21
7	7
	1



42 = 2 × 3 × 7

(c) 45

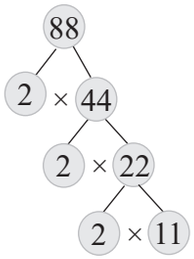
3	45
3	15
5	5
	1



45 = 3 × 3 × 5

(d) 88

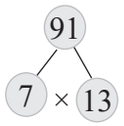
2	88
2	44
2	22
11	11
	1



88 = 2 × 2 × 2 × 11

(e) 91

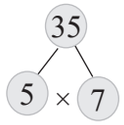
7	91
13	13
	1



91 = 9 × 13

(f) 35

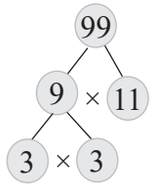
5	35
7	7
	1



35 = 5 × 7

(g) 99

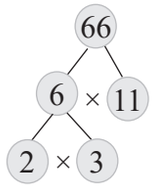
3	99
3	33
11	11
	1



99 = 3 × 3 × 11

(h) 66

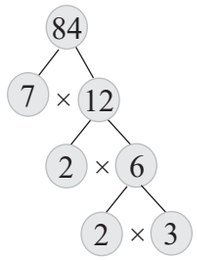
2	66
3	33
11	11
	1



66 = 2 × 3 × 11

(i) 84

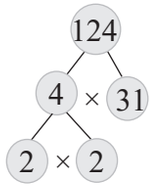
2	84
2	42
3	21
7	7
	1



$84 = 2 \times 2 \times 3 \times 7$

(j) 124

2	124
2	62
31	31
	1



$124 = 2 \times 2 \times 31$

Exercise 4.5

1. (a) 21, 35

Factor of 21: 1, 3, 7, 21

Factor of 35: 1, 5, 7, 35

Common factors: 1 and 7, HCF = 7

(b) 42, 63

Factor of 42: 1, 2, 3, 6, 7, 21, 42

Factor 63: 1, 3, 9, 7, 9, 21 and 63

Common factors: 1, 3, 7 and 21

HCF = 21

(c) 40, 75

Factors of 40: 1, 2, 5, 8, 10, 20, 40

Factors of 75: 1, 3, 5, 15, 25, 75

Common factors: 1 and 5

HCF = 5

2. (a) 15, 24

Factors of 15: 1, 3, 5 and 15

Factors of 24: 1, 3, 6, 12 and 24

Common factors: 1 and 3, HCF = 3

(b) 20 and 36

Factors of 20: 1, 2, 4, 5, 10 and 20

Factors of 36: 1, 2, 3, 4, 6, 9, 12, 18 and 36

Common factors: 1, 2, and 4

HCF = 4

(c) 14 and 36

Factors of 14: 1, 2, 7 and 14

Factors of 36: 1, 2, 3, 4, 6, 9

Common factors: 1 and 2

HCF = 2

3. (a) 33, 77

Factor of 33: 1, 3, 11 and 33

Factor of 77: 1, 7, 11 and 77

Common factors: 1 and 11

HCF = 11

(b) 39, 65

Factors of 39: 1, 3, 13 and 39

Factors of 65: 1, 5, 13 and 65

Common factors: 1 and 13

HCF = 13

(c) 45, 72

Factors of 45: 1, 3, 5, 9, 15 and 45.

Factors of 72: 1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36 and 72

Common factors: 1, 3 and 9

HCF = 9

(d) 20, 40, 70

Factors of 20: 1, 2, 5, 10 and 20

Factors of 40: 1, 2, 5, 8, 10, 20, 40

Factors of 70: 1, 5, 7, 10, 14, 35 and 70

Common factors: 1, 5 and 10

HCF = 10

(e) 24, 40, 64

Factors of 24: 1, 2, 3, 4, 6, 8, 12 and 35

Factors of 40: 1, 2, 5, 8, 10, 20 and 40

Factors of 64: 1, 2, 4, 8, 16, 32 and 64

Common factors: 1, 2 and 8

HCF = 8

(f) 15, 30, 75

Factors of 15: (1), (3), (5) and (15)

Factors of 30: (1), (3), (5), 10, (15) and 30

Factors of 75: (1), (3), (5), (15), 25 and 75

Common factors: 1, 3, 5, 15

HCF = 15

(g) 28, 42, 70

Factors of 28: (1), (2), 4, (7), (14) and 28

Factors of 42: (1), (2), 3, 6, (7), (14), 21 and 42

Factors of 70: (1), (2), 5, (7), 10, (14), 35 and 70

Common Factors: 1, 2, 7 and 14

HCF = 14

(h) 21, 56, 35

Factor of 21: (1), 3, (7) and 21

Factor of 56: (1), 2, 4, (7), 8, 14, 28 and 56

Factor of 35: (1), 5, (7) and 35

Common factors: 1 and 7

HCF = 7

4. (a) 14, 49

2	14
7	7
	1

7	49
7	7
	1

14 = 2 × (7)

49 = 7 × (7)

HCF = 7

(b) 26, 52

2	26
13	13
	1

2	52
2	26
13	13
	1

26 = (2) × (13)

52 = 2 × (2) × (13)

HCF = 2 × 13

= 26

(c) 33, 60

3	33
11	11
	1

2	60
2	30
3	15
5	5
	1

33 = (3) × 11

60 = 2 × 2 × (3) × 5

HCF = 3

(d) 15, 40

3	15
5	5
	1

2	40
2	20
3	10
5	5
	1

15 = 3 × (5)

40 = 2 × 2 × 2 × (5)

HCF = 3 × 5

HCF = 5

(e) 12, 24, 48

2	12
2	6
3	3
	1

2	24
2	12
2	6
3	3
	1

2	48
2	24
2	12
2	6
3	3
	1

12 = (2) × (2) × (3)

24 = 2 × (2) × (2) × (3)

48 = 2 × 2 × (2) × (2) × (3)

HCF = 2 × 2 × 3

HCF = 12

(f) 24, 36, 56

2	24
2	12
2	6
3	3
	1

2	36
2	18
3	9
3	3
	1

2	56
2	28
2	14
7	7
	1

24 = (2) × (2) × 2 × 3

36 = (2) × (2) × 3 × 3

$56 = (2) \times (2) \times 2 \times 7$

HCF $= 2 \times 2$

HCF $= 4$

(g) 22, 66, 99

2 | 22
11 | 11
| 1

2 | 66
3 | 33
11 | 11
| 1

3 | 99
3 | 33
11 | 11
| 1

$22 = 2 \times (11)$

$66 = 2 \times 3 \times (11)$

$99 = 3 \times 3 \times (11)$

HCF $= 11$

(h) 48, 72, 96

2 | 48
2 | 24
2 | 12
2 | 6
3 | 3
| 1

2 | 72
2 | 36
2 | 18
3 | 9
3 | 3
| 1

2 | 96
2 | 48
2 | 24
2 | 12
2 | 6
3 | 3
| 1

$48 = (2) \times (2) \times (2) \times 2 \times (3)$

$72 = (2) \times (2) \times (2) \times (3) \times 3$

$96 = (2) \times (2) \times (2) \times 2 \times 2 \times (3)$

HCF $= 2 \times 2 \times 2 \times 3 = 24$

5. (a) 24, 30

$$\begin{array}{r} 24\overline{)\ 30\ (1} \\ -\ 24 \\ \hline 6\ )\ 24\ (4 \\ -\ 24 \\ \hline 0 \end{array}$$

HCF of 24 and 30 = 6

(b) 32, 80

$$\begin{array}{r} 32\overline{)\ 80\ (2} \\ -\ 64 \\ \hline 16\ )\ 32\ (2 \\ -\ 32 \\ \hline 0 \end{array}$$

HCF of 32 and 80 = 16

(c) 49, 56

$$\begin{array}{r} 49\overline{)\ 56\ (1} \\ -\ 49 \\ \hline 7\ )\ 49\ (7 \\ -\ 49 \\ \hline 0 \end{array}$$

HCF of 49 and 56 = 7

(d) 14, 28, 70

$$\begin{array}{r} 2 \\ 14\overline{)\ 28} \\ -\ 28 \\ \hline 0 \end{array}$$

HCF of 14 and 28 = 14

$$\begin{array}{r} 5 \\ 14\overline{)\ 70} \\ -\ 70 \\ \hline 0 \end{array}$$

HCF of 14, 28 and 70 = 14

(e) 36, 54, 72

$$\begin{array}{r} 36\overline{)\ 54\ (1} \\ -\ 36 \\ \hline 18\ )\ 36\ (2 \\ -\ 36 \\ \hline 0 \end{array}$$

HCF of 36 and 54 is 18.

$$\begin{array}{r} 4 \\ 18\overline{)\ 72} \\ -\ 72 \\ \hline 0 \end{array}$$

HCF of 36, 54 and 72 is 18.

(f) 28, 70 and 84

$$\begin{array}{r} 28\overline{)\ 70\ (2} \\ -\ 56 \\ \hline 14\ )\ 28\ (2 \\ -\ 28 \\ \hline 0 \end{array}$$

HCF of 28 and 70 is 14.

$$\begin{array}{r} 6 \\ 14\overline{)\ 84} \\ -\ 84 \\ \hline 0 \end{array}$$

HCF of 28, 70 and 84 is 14.

(g) 64, 80, 112

$$\begin{array}{r} 64\overline{)\ 80\ (1} \\ -\ 64 \\ \hline 16\ )\ 64\ (4 \\ -\ 64 \\ \hline 0 \end{array}$$

HCF of 64 and 80 is 16.

$$\begin{array}{r} 7 \\ 16\overline{)112} \\ -\ 112 \\ \hline 0 \end{array}$$

HCF of 64, 80 and 112 is 16.

(h) 36, 72, 108

$$\begin{array}{r} 2 \\ 36\overline{)\ 72} \\ -\ 72 \\ \hline 0 \end{array}$$

HCF of 36 and 72 is 36.

$$\begin{array}{r} 3 \\ 36\overline{)108} \\ -\ 108 \\ \hline 0 \end{array}$$

HCF of 36, 72 and 108 is 36.

6. (a) Number of Tomatoes: 32

Number of Capsicum: 48

Greatest number of baskets with each having same number of tomatoes and Capsicum = HCF of number of tomatoes and Number of Capsicum

= HCF of 32 and 48

By long division method:

$$\begin{array}{r} 32\overline{)\ 48\ (1} \\ -\ 32 \\ \hline 16\ )\ 32\ (2 \\ -\ 32 \\ \hline 0 \end{array}$$

By long divison method:

Answer: Greatest number of baskets with each having same number of tomatoes and capsicum is 16.

(b) Number of plants in first row: 16

Number of plants in second row: 24

Number of plants in third row: 40

Number of flowers should be planted to make the number of rows equal: HCF of 16, 24, 40

By long divison method:

$$\begin{array}{r} 16\overline{)\ 24\ (1} \\ -\ 16 \\ \hline 8\ )\ 24\ (3 \\ -\ 24 \\ \hline 0 \end{array}$$

Answer: 8 Plants should be planted in each row to make the number of rows equal.

(c) Number of pastries Pranav wants to distribute: 24

Number of chocolates Pranav wants to distribute: 16

Maximum number of packets he can make containing equal number of items = HCF of number of pastires and number of chocolate = HCF of 24 and 16

By long divison method:

$$\begin{array}{r} 16\overline{)\ 24\ (1} \\ -\ 16 \\ \hline 8\ )\ 16\ (2 \\ -\ 16 \\ \hline 0 \end{array}$$

HCF of 16 and 24 is 8.

Number of pastires in each packet:

$$\frac{\text{Total Number of pastires}}{\text{Number of packets}} = \frac{24}{8} = 3$$

Number of choclate in each packet:

$$\frac{\text{Total number of Choclates}}{\text{Number of packets}} = \frac{16}{8} = 2$$

Answer: Pranav can make maximum 8 packets each containing 3 pastries and 2 chocolates.

Exercise 4.6

1. (a) 8, 16

Multiples of 8: 8, 16, 24, 32, 40, 48 ....

Multiples of 16: 16, 32, 48, 64, 80, 94 ...

Common multiples: 16, 32, 48 ....

(b) 9, 18

Multiples of 9: 9, 18, 27, 36, 45, 54 ...

Multiples of 18: 18, 36, 54, 72, 90, 108 ...

Common multiples: 18, 36, 54 ...

(c) 10, 20

Multiples of 10: 10, 20, 30, 40, 50, 60 ...

Multiples of 20: 20, 40, 60, 80, 100 ...

Common multiples: 20, 40, 60 ...

2. (a) 8, 16

Multiples of 8: 8, 16, 24, 32, 40, 48...

Multiples of 16: 16, 32, 48, 64, 80, 94 ...

Common multiples: 16, 32, 48 ....

(b) Multiples of 3: 3, 6, 9, 12, 15, 18 ...

Multiples of 6: 6, 12, 18, 24, 30, 36 ...

Common multiples: 6, 12, 18 ...

(c) Multiples of 6: 6, 12, 18, 24, 30, 36 ...

Multiples of 9: 9, 18, 27, 36, 45, 54 ...

Common multiples: 18, 36 ...

3. (a) Multiples of 16: 16, 32, 48, 64, 80, 96, 112, 128, 144

Multiples of 18: 18, 36, 54, 72, 90, 108, 126, 144

Common multiples: 144

LCM = 144

(b) Multiples of 10: 10, 20, 30, 40, 50, 60

Multiples of 15: 15, 30, 45, 60, 75

Common multiples: 30, 60

LCM = 30

(c) Multiples of 12: 12, 24, 36, 48, 60, 72, 84, 96

Multiples of 16: 16, 32, 48, 64, 80, 96, 112, 128

Common multiples: 48, 96

LCM = 48

(d) Multiples of 24: 24, 48, 72, 96, 120, 144

Multiples of 36: 36, 72, 108, 144, 180, 216

Common multiples: 72, 144

LCM = 72

(e) Multiples of 20: 20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 220, 240, 260, 280, 300

Multiples of 30: 30, 60, 90, 120, 150, 180, 210, 240, 270, 300

Multiples of 50: 50, 100, 150, 200, 250, 300

Common multiples: 300

LCM = 300

(f) Multiples of 20: 20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 220, 240, 260, 280, 300, 230

Multiples of 32: 32, 64, 96, 128, 160, 192, 224, 256, 288, 320, ...

Multiples of 40: 40, 80, 120, 160, 200, 240, 280, 320, ...

Common multiples: 160, 320

LCM = 160

(g) Multiples of 11: 11, 22, 33, 44, 55, 66, 72, 88, 99, 110, 121, 132, 143, 154, 165

Multiples of 22: 22, 44, 66, 88, 110, 132, 154

Multiples of 33: 33, 66, 99, 132, 165, 198, 231

Common Multiples: 66, 132

LCM = 66

(h) Multiples of 12: 12, 24, 36, 48, 60, 72, 84, 96

Multiples of 16: 16, 32, 48, 64, 80, 96

Multiples of 32: 32, 64, 96, 128, 160

Common Multiples: 96

LCM = 96

4. (a) 14, 56

2	14
7	7
	1

$14 = 2 \times 7$

2	56
2	28
2	14
7	7
	1

$56 = 2 \times 2 \times 2 \times 7$

Largest number of times factor 2 occurs is 3.

Largest number of times factor 7 occours is 1.

LCM = $2 \times 2 \times 2 \times 7 = 56$

(b) 42, 70

2	42
3	21
7	7
	1

2	70
5	35
7	7
	1

$42 = 2 \times 3 \times 7$ $70 = 2 \times 5 \times 7$

Largest number times factor 2, 3, 5 occours and 7 occours are 1

LCM = $2 \times 5 \times 7 \times 3 = 210$

(c)

2	32
2	16
2	8
2	4
2	2
	1

2	72
2	36
2	18
3	9
3	3
	1

$32 = 2 \times 2 \times 2 \times 2 \times 2$

$72 = 2 \times 2 \times 2 \times 3 \times 3$

Maximum number of times factor 2 occours is 5

Maximum number of times factor 3 occours is 2.

LCM = $2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3$

$= 288$

(d) 18, 20, 32

2	18
3	9
3	3
	1

2	20
2	10
5	5
	1

2	32
2	16
2	8
2	4
2	2
	1

$18 = 2 \times 3 \times 3$

$20 = 2 \times 2 \times 5$

$32 = 2 \times 2 \times 2 \times 2 \times 2$

Maximum number of times factor 2 occours: 5

Maximum number of times factor 3 occours: 2

Maximum number of times factor 5 occours: 1

LCM = $2 \times 2 \times 2 \times 2 \times 2 \times 5 \times 3 \times 3 = 1440$

(e) 12, 60, 30

2	12
2	6
3	3
	1

2	30
3	15
5	5
	1

2	16
2	8
2	4
2	2
	1

$12 = 2 \times 2 \times 3$

$16 = 2 \times 2 \times 2 \times 2$

$30 = 2 \times 3 \times 5$

Maximum number of times factor 2 occours is 4

Maximum number of times factor 3 occours is 1

Maximum number of times factor 5 occours is 1

LCM = $2 \times 2 \times 3 \times 5 \times 2 \times 2$

LCM = 240

(f) 21, 36, 24

3	21
7	7
	1

2	36
2	18
3	9
3	3
	1

2	24
2	12
2	6
3	3
	1

$21 = 3 \times 7$

$36 = 2 \times 2 \times 3 \times 3$

$24 = 2 \times 2 \times 2 \times 3$

Maximum number of times factor 2 occours: 3

Maximum number of times factor 3 occours: 2

Maximum number of times factor 7 occurs:1

LCM = $2 \times 2 \times 2 \times 3 \times 3 \times 7 = 504$

(g) 3, 15, 60

3	3
	1

3	15
5	5
	1

2	60
2	30
3	15
5	5
	1

$3 = 1 \times 3$

$5 = 3 \times 5$

$60 = 2 \times 2 \times 3 \times 5$

Maximum number of times factor 3 occours: 1

Maximum number of times factor 2 occours: 2

Maximum number of times factor 5 occours: 1

LCM = $3 \times 2 \times 2 \times 5$

= 60

(h) 33, 55, 99

3	33
11	11
	1

5	55
11	11
	1

3	99
3	33
11	11
	1

$33 = 3 \times 11$

$55 = 5 \times 11$

$99 = 3 \times 3 \times 11$

Maximum number of times factor 11 occours: 1

Maximum number of times factor 5 occours: 1

Maximum number of times factor 3 occours: 2

LCM = $11 \times 5 \times 3 \times 3 = 495$

5. (a) 7, 21, 42

7	7, 21, 42
3	1, 3, 6
2	1, 1, 2
	1

LCM = $7 \times 3 \times 2 = 42$

(b) 9, 12, 30

2	9, 12, 30
3	9, 6, 15
3	9, 3, 15
3	3, 1, 5
5	1, 1, 5
	1, 1, 1

LCM = $2 \times 2 \times 3 \times 3 \times 5 = 180$

(c) 14, 52, 36

2	14, 52, 36
2	7, 26, 18
7	7, 13, 9
13	1, 13, 9
3	1, 1, 9
3	1, 1, 3
	1, 1, 1

LCM = $2 \times 2 \times 7 \times 13 \times 3 \times 3 = 3276$

(d) 6, 10, 16

2	6, 10, 16
2	3, 5, 8
2	3, 5, 4
2	3, 5, 2
3	3, 5, 1
5	1, 5, 1
	1, 1, 1

LCM = $2 \times 2 \times 2 \times 2 \times 3 \times 5 = 240$

(e) 32, 16, 50

2	32, 16, 50
2	16, 8, 25
2	8, 4, 25
2	4, 2, 25
2	2, 1, 25
5	1, 1, 25
5	1, 1, 5
	1, 1, 1

LCM = $2 \times 2 \times 2 \times 2 \times 2 \times 5 \times 5 = 800$

(f) 14, 35, 49

2	14, 35, 49
7	7, 35, 49
7	1, 5, 7
5	1, 5, 1
	1, 1, 1

LCM = $2 \times 7 \times 7 \times 5 = 490$

6. (a) Clocks will ring together again at the LCM of intervals of both the clocks ringing = LCM of 15 minutes and 45 minutes = 45

3	15, 45
3	5, 15
5	5, 5
	1, 1

LCM = 3 × 3 × 5 = 45

Clock will ring together after 45 minutes, If they rang at 8am, then the clocks will rang again at 8am + 45 minutes = 8: 45am.

(b) Total number of Stickers = LCM of groups in which no stickers are left behind = LCM of 6, 10 and 12.

2	6, 10, 12
3	3, 5, 6
2	1, 5, 2
5	1, 5, 1
	1, 1, 1

LCM = 2 × 3 × 2 × 5

= 60

Answer: Total number of stickers are 60.

(c) Tubelight will flash together = LCM of both the tubelight flashing

= LCM of 30 and 36

2	30, 36
2	15, 18
3	15, 9
3	5, 3
5	5, 1
	1, 1

= 2 × 2 × 3 × 3 × 5

= 180

Tubelights will flash together in 180 seconds

1 minutes = 60 second

1 second = $\frac{1}{60}$ minutes

180 seconds = $\frac{180}{60}$ minutes

= 3 minutes

Bell will ring again in 3 minutes

(i) Second time they will flash together = 10: 45pm + 3 minutes

= 10: 48pm

(ii) Fifth time they will flash together = 10: 45pm + 3 × 4 minutes

= 10:45pm + 12minutes

= 10: 57pm

Exercise 4.7

1. (a) HCF × LCM = Product of numbers

5 × LCM = 525

LCM = $\frac{525}{5}$

LCM = 105

(b) HCF × LCM = Product of numbers

11 × 66 = Product of numbers

Product of number = 726

(c) HCF × LCM = Product of numbers

HCF × 36 = 324

HCF = $\frac{324}{36}$

HCF = 9

2. LCM × HCF = Product of numbers

LCM × 4 = 160

LCM = 40

3. HCF × LCM = Product of numbers

5 × 150 = 25 × Number

750 = 25 × Number

Number = 30

4. HCF × LCM = Product of numbers

HCF × 120 = 1800

HCF = $\frac{1800}{120}$

HCF = 15

Learning Updates

1. (a)

3	117
3	39
13	13
	1

117 = 3 × 3 × 13

(b)

2	114
3	57
19	19
	1

114 = 19 × 3 × 2

(c)

2	256
2	128
2	64
2	32
2	16
2	8
2	4
2	2
	1

$324 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$

(d)

2	324
2	162
3	81
3	27
3	9
3	3
	1

$324 = 2 \times 2 \times 3 \times 3 \times 3 \times 3$

(e)

2	162
3	81
3	27
3	9
3	3
	1

$162 = 2 \times 3 \times 3 \times 3 \times 3$

(f)

2	750
3	375
5	125
5	25
5	5
	1

$750 = 2 \times 3 \times 5 \times 5 \times 5$

2. (a) 72, 96, 12

2	72, 96, 12
2	36, 48, 6
2	18, 24, 3
2	9, 12, 3
2	9, 6, 3
3	9, 3, 3
3	3, 1, 1
	1, 1, 1

LCM = $2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 = 288$

(b) 36, 64, 14

2	36, 64, 14
2	18, 32, 7
2	9, 16, 7
2	9, 8, 7
2	9, 4, 7
2	9, 2, 7
3	9, 1, 7
3	3, 1, 7
7	1, 1, 7
	1, 1, 1

LCM = $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 7 = 4032$

(c) 15, 25, 75

3	15, 25, 75
5	5, 25, 25
5	1, 5, 5
	1, 1, 1

LCM = $3 \times 5 \times 5 = 75$

(d) 21, 28, 42

2	21, 28, 42
2	21, 14, 21
3	21, 7, 21
7	7, 7, 7
	1, 1, 1

LCM = $2 \times 2 \times 3 \times 7 = 84$

(e) 28, 12, 96

2	28, 12, 96
2	14, 6, 48
2	7, 3, 24
2	7, 3, 12
2	7, 3, 6
3	7, 3, 3
7	7, 1, 1
	1, 1, 1

LCM = $2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 7 = 672$

(f) 12, 14, 16

2	12, 14, 16
2	6, 7, 8
2	3, 7, 4
2	3, 7, 2
3	3, 7, 1
7	1, 7, 1
	1, 1, 1

LCM = $2 \times 2 \times 2 \times 2 \times 3 \times 7 = 336$

3. (a) 11, 77, 22

$$11\overline{)77}\ 7,\quad -77,\quad 0$$

HCF of 11 and 77 is 11

$$11\overline{)22}\ 2,\quad -22,\quad 0$$

HCF of 11, 77 and 22 is 11.

(b) 15, 90, 60

$$15\overline{)90}\ 6,\quad -90,\quad 0$$

HCF of 15 and 90 is 15

$$15\overline{)60}\ 4,\quad -60,\quad 0$$

HCF of 15, 90 and 60 is 15.

(c) 30, 81, 51

$30\overline{)81}\ (2,\ -60$

$21\overline{)30}\ (1,\ -21$

$9\overline{)21}\ (2,\ -18$

$3\overline{)9}\ (3,\ -9,\ 0$

HCF of 30, 81 is 3

$3\overline{)51}\ 27,\ -3\downarrow,\ 21,\ -21,\ 0$

HCF of 30, 81 and 51 is 3

(d) 24, 36, 30

$24\overline{)36}\ (1,\ -24$

$12\overline{)24}\ (2,\ -24,\ 0$

$12\overline{)30}\ (2,\ -24$

$6\overline{)12}\ (2,\ -12,\ 0$

HCF of 24 and 36 is 12

HCF of 24, 36 and 30 is 6.

(e) 13, 104, 78

$$13\overline{)104}\ 8,\quad -104,\quad 0$$

$$13\overline{)78}\ 6,\quad -78,\quad 0$$

HCF of 13 and 104 is 13

HCF of 104 and 78 is 13

(f) 86, 90, 32

$86\overline{)90}\ (1,\ -86$

$4\overline{)86}\ (21,\ -8\downarrow,\ 6,\ -4$

$2\overline{)4}\ (2,\ -4,\ 0$

$$2\overline{)32}\ 16,\quad -2\downarrow,\quad 12,\quad -12,\quad 0$$

HCF of 86 and 90 is 2

HCF of 86, 90 and 32 is 2.

4. HCF × LCM = Product of 2 numbers

$3 \times 45 = 9 \times$ number

$135 = 9 \times$ number

$\text{Number} = \frac{135}{9}$

Number = 15

5. Maximum capacity of container which can measure can measure the petrol of both gallons, so that no petrol is left in either gallon = HCF of quantity of petrol in both gallons

$$\begin{array}{l} 20\overline{)\ 36\ }(1 \\ \quad -20 \\ \hline 16\overline{)\ 20\ }(1 \\ \quad -16 \\ \hline 4\overline{)\ 16\ }(4 \\ \quad -16 \\ \hline \quad 0 \end{array}$$

= HCF of 20 and 36

= 4

Maximum capacity of container which can measure the petrol of both gallons, so that no petrol is left in either gallon is 4 litres.

6. HCF × LCM = Product of 2 numbers

$2 \times \text{LCM} = 56$

$\text{LCM} = \frac{56}{2}$

LCM = 28

7. HCF × LCM = Product of 2 numbers

$\text{HCF} \times 168 = 1008$

$\text{HCF} = \frac{1008}{168}$

HCF = 6

8. Length of first rope: 16m

Length of second rope: 24m

Maximum length of each piece of equal length = HCF of length of first rope & second rope

$$\begin{array}{l} 16\overline{)\ 24\ }(1 \\ \quad -16 \\ \hline 8\overline{)\ 16\ }(2 \\ \quad -16 \\ \hline \quad 0 \end{array}$$

HCF of 16 and 24

= 8

Answer: Maximum length of each piece of equal length is 8m.

9. Least number of stones required so that equal heaps of 15, 20 and 30 stones can be made = LCM of 15, 20 and 30 = 60

2	15, 20, 30
2	15, 10, 15
3	15, 5, 15
5	5, 5, 5
	1, 1, 1

LCM = 2 × 2 × 3 × 5 = 60

Answer: 60 Stones are least required so that equal heaps of 15, 20 or 30 stones can be made.

10. Time service A arrives in: 15 minutes

Time Service B arrives in: 20 minutes

Time Service C arrives in: 30 minutes

Time all buses will arrive together: LCM of 15, 20, 30 = 60

All buses will arrive together in 60 minutes/ 1 hour

2	15, 20, 33
2	15, 10, 15
3	15, 5, 15
5	5, 5, 5
	1, 1, 1

LCM = 2 × 2 × 3 × 5 = 60

Bus again will arrive in 9: 00 am + 60 minutes/1 hour

= 10: 00am.

Multiple Choice Questions

1. LCM of 30 and 40

2	30, 40
2	15, 20
2	15, 10
3	15, 5
5	5, 5
	1, 1

$= 2 \times 2 \times 2 \times 3 \times 5$

$= 120$

(a) 120

2. (b) 1

3. (d) Product

4. HCF of 448 and 616

$448 \overline{)616} (1$ $\quad = 56$ (c) 56

-448

$168 \overline{)448} (2$

-336

$112 \overline{)168} (1$

-112

$56 \overline{)112} (2$

-112

0

5.

2	176
2	88
2	44
2	22
11	11
	1

$176 = 2 \times 2 \times 2 \times 2 \times 11$

Answer: (d) $2 \times 2 \times 2 \times 2 \times 11$

Skills Check

1. Least number which when divided by 100, 12,0 or 150 leaves a remainder 5 = LCM of 100, 120, 150 + Remainder

$= 600 + 5$

$= 605$

2	100, 120, 150
2	50, 60, 75
2	25, 30, 75
3	25, 15, 75
5	25, 5, 25
5	5, 1, 5
	1, 1, 1

LCM $= 2 \times 2 \times 2 \times 3 \times 5 \times 5$

$= 600$

Answer: Least number which when divided by 100, 120 or 150 leaves a remainder 5 is 605.

2. (a) Total number of boys: 32

Total number of girls: 40

Greatest number of teams that can participate in the function with same number of girls and boys = HCF of total number of boys and total number of girls

= HCF of 32 and 40

= 8

$32 \overline{)40} (1$

-32

$8 \overline{)32} (4$

-32

0

Answer: Greatest number of teams that can participate in the function with same number of girls and boys are 8.

(b) $32 \div 8 = 4$

$40 \div 8 = 5$

Therefore, there are five girls and four boys in each team.

5 Fractions

Get Started

1. Remaining part of the cake = Total cake – [Part of cake Ruhi want + Part of cake Suchi want]

$= 1 - \left[\frac{4}{12} + \frac{6}{12}\right] = 1 - \left(\frac{4+6}{12}\right) = 1 - \frac{10}{12}$

$=$

$\frac{12-10}{12} = \frac{2}{12}$

Answer: $\frac{2}{12}$ of cake is left.

2. 1 hour = 60 minutes

(a) 10 minutes = $\frac{10}{60}$

(b) 30 minutes = $\frac{30}{60}$

(c) 45 minutes = $\frac{45}{60}$

(d) 55 minutes = $\frac{55}{60}$

Exercise 5.1

1. Like fractions: Fraction having the same denominator

(a) $\frac{4}{7}, \frac{5}{7}$

(c) $\frac{3}{8}, \frac{7}{8}$

(d) $\frac{9}{13}, \frac{11}{13}$

2. Unit Fraction: Fractions with numerator as 1

$\frac{1}{3}, \frac{1}{7}$

3. Unlike fraction: Fractions having different denominators

(a) $\frac{1}{5}, \frac{1}{8}$ (c) $\frac{4}{7}, \frac{4}{9}$

4. proper fractions: Fractions with denominator greater than the numerator

(a) $\frac{2}{3}$ (c) $\frac{5}{8}$ (d) $\frac{9}{11}$

5. Improper fraction: Fractions with numerator greater than the denominator.

(b) $\frac{9}{5}$ (c) $\frac{11}{7}$ (d) $\frac{9}{1}$

6. (a) $4\frac{3}{8} = \frac{8 \times 4 + 3}{8} = \frac{32+3}{8} = \frac{35}{8}$

(b) $4\frac{2}{3} = \frac{4 \times 3 + 2}{3} = \frac{12+2}{3} = \frac{14}{3}$

(c) $5\frac{3}{7} = \frac{7 \times 5 + 3}{7} = \frac{35+3}{7} = \frac{38}{7}$

(d) $15\frac{5}{8} = \frac{8 \times 15 + 5}{8} = \frac{120+5}{8} = \frac{125}{8}$

7. (a) $\frac{15}{4}$

Denominator → 4) 15 ← Whole number

− 12

3 ← Numerator

Answer: $3\frac{3}{4}$

(b) $\frac{19}{5}$

Denominator → 5) 19 ← Whole number

− 15

04 ← Numerator

Answer: $3\frac{4}{5}$

(c) $\frac{26}{8}$

Denominator → 8) 26 ← Whole number

− 24

02 ← Numerator

Answer: $3\frac{2}{8}$

(d) $\frac{32}{6}$

Denominator → 6) 32 ← Whole number

− 30

02 ← Numerator

Answer: $5\frac{2}{6}$

8. (a) $3\frac{1}{4} = \frac{\boxed{13}}{4}$

$= 3\frac{1}{4} = \frac{4 \times 3 + 1}{4} = \frac{12+1}{4} = \frac{13}{4}$

(b) $5\frac{6}{8} = \frac{46}{\boxed{8}}$

$= 5\frac{6}{8} = \frac{8 \times 5 + 6}{8} = \frac{40+6}{8} = \frac{46}{8}$

(c) $4\frac{\boxed{2}}{9} = \frac{38}{9}$

Denominator → 9) 38 ← Whole number

− 36

02 ← Numerator

$= 4\frac{2}{9}$

(d) $5\frac{1}{16} = \frac{\boxed{81}}{16}$

$= 5\frac{1}{16} = \frac{16 \times 5 + 1}{16} = \frac{80 + 1}{16} = \frac{81}{16}$

Exercise 5.2

1. (a) $\frac{1}{5}: \frac{1 \times 2}{5 \times 2} = \frac{2}{10}, \frac{1 \times 3}{5 \times 3} = \frac{3}{15}, \frac{1 \times 4}{5 \times 4} = \frac{4}{20}, \frac{1 \times 5}{5 \times 5} = \frac{5}{25}, \frac{1 \times 5}{5 \times 6} = \frac{6}{30}$

(b) $\frac{2}{7}: \frac{2 \times 2}{7 \times 2} = \frac{4}{14}, \frac{2 \times 3}{7 \times 3} = \frac{6}{21}, \frac{2 \times 4}{7 \times 4} = \frac{8}{28}, \frac{2 \times 5}{7 \times 5} = \frac{10}{35}, \frac{2 \times 6}{7 \times 6} = \frac{12}{42}$

(c) $\frac{8}{11}: \frac{8 \times 2}{11 \times 2} = \frac{16}{22}, \frac{8 \times 3}{11 \times 3} = \frac{24}{33}, \frac{8 \times 4}{11 \times 4} = \frac{32}{44}, \frac{8 \times 5}{11 \times 5} = \frac{40}{55}, \frac{8 \times 6}{11 \times 6} = \frac{48}{66}$

(d) $\frac{2}{5}: \frac{2 \times 2}{5 \times 2} = \frac{4}{10}, \frac{2 \times 3}{5 \times 3} = \frac{6}{15}, \frac{2 \times 4}{5 \times 4} = \frac{8}{20}, \frac{2 \times 5}{5 \times 5} = \frac{10}{25}, \frac{2 \times 6}{5 \times 6} = \frac{12}{30}$

2. (a) $\frac{16 \div 2}{80 \div 2} = \frac{\boxed{8}}{40}, \frac{16 \div 4}{80 \div 4} \frac{4}{\boxed{20}}$

(b) $\frac{12 \div 4}{32 \div 4} = \frac{3}{\boxed{8}}$

(c) $\frac{4 \times 7}{9 \times 7} = \frac{\boxed{28}}{63}$

(d) $\frac{16 \div 2}{48 \div 2} = \frac{\boxed{8}}{24}, \frac{16 \div 4}{48 \div 4} = \frac{\boxed{4}}{12}, \frac{16 \div 8}{48 \div 8} = \frac{\boxed{2}}{6}$

(e) $\frac{15 \div 3}{75 \div 3} = \frac{\boxed{5}}{25}$

3. (a) $\frac{4}{5}, \frac{25}{45}: \frac{4}{5} \times \frac{25}{45}$

$4 \times 45 = 180, 25 \times 5 = 125$

$180 \neq 125$

Since, the produts are not equal, the fractions $\frac{4}{5}$ and $\frac{25}{45}$ are non–equilvalent fractions.

(b) $\frac{3}{8}, \frac{9}{24}: \frac{3}{8} \times \frac{9}{24}$

$3 \times 24 = 72, 8 \times 9 = 72$

$72 = 72$

Since, the products are equal, the fractions $\frac{3}{8}$ and $\frac{9}{24}$ are equivalent fractions.

(c) $\frac{21}{45}, \frac{35}{75}: \frac{21}{45} \times \frac{35}{75}$

$= 21 \times 75 = 1575$

$= 35 \times 45 = 1575$

$1575 = 1575$

Since, the products are equal, the fractions $\frac{21}{45}$ and $\frac{35}{75}$ are equivalent fractions.

(d) $\frac{75}{50}, \frac{15}{10}: \frac{75}{50} \times \frac{15}{10}$

$75 \times 10 = 750$

$15 \times 50 = 750$

$750 = 750$

Since, the products are equal, the fractions $\frac{75}{50}$ and $\frac{15}{10}$ are equilvalent fractions.

(e) $\frac{4}{10}, \frac{8}{20}: \frac{4}{10} \times \frac{8}{20}$

$4 \times 20 = 80$

$8 \times 10 = 80$

$80 = 80$

Since, the product are equal, the fractions $\frac{4}{10}$ and $\frac{8}{20}$ are equivalent fractions

(f) $\frac{14}{6}, \frac{16}{24}: \frac{14}{6} \times \frac{16}{24}$

$= 14 \times 24 = 336, 16 \times 6 = 96$

$336 \neq 16$

Since, the products are not equal, the fraction $\frac{14}{6}$ and $\frac{16}{24}$ are non – equivalent fractions.

4. (a) $\frac{5 \times 4}{7 \times 4} = \frac{20}{\boxed{28}}$

(b) $\frac{5 \times 7}{7 \times 7} = \frac{\boxed{35}}{49}$

(c) $\frac{5 \times 7}{7 \times 7} = \frac{35}{\boxed{49}}$

Exercise 5.3

1. (a) $\frac{10 \div 5}{15 \div 5} = \frac{2}{3}$

(b) $\frac{28 \div 7}{49 \div 7} = \frac{4}{7}$

(c) $\frac{36 \div 18}{54 \div \boxed{18}} = \frac{2}{3}$

2. (a) $\frac{8}{24}$

HCF of 8 and 24

By long divison method

$$\begin{array}{r} 3 \\ 8\overline{)\ 24} \\ -\ 24 \\ \hline 0 \end{array}$$

HCF = 8

$\frac{8}{24} = \frac{8 \div 8}{24 \div 8} = \frac{1}{3}$

(b) $\frac{16}{34}$, HCF of 16 and 34

By long division method

$$\begin{array}{r} 16\overline{)\ 34\ (2} \\ -\ 32 \\ \hline 2\ )\ 16\ (8 \\ -\ 16 \\ \hline 0 \end{array}$$

HCF = 2

$\frac{16}{34} = \frac{16 \div 2}{34 \div 2} = \frac{8}{17}$

(c) $\frac{15}{39}$, HCF of 15 and 39

By long divison method

$$\begin{array}{r} 15\overline{)\ 39\ (2} \\ -\ 30 \\ \hline 9\ )\ 15\ (1 \\ -\ 9 \\ \hline 6\ )\ 9\ (1 \\ -\ 6 \\ \hline 3\ )\ 6\ (2 \\ -\ 6 \\ \hline 0 \end{array}$$

HCF = 3

HCF = $\frac{15}{39} = \frac{15 \div 3}{39 \div 3} = \frac{5}{13}$

(d) $\frac{18}{45}$, HCF of 18 and 45

By long divison method

$$\begin{array}{r} 18\overline{)\ 45\ (2} \\ -\ 36 \\ \hline 9\ )\ 18\ (2 \\ -\ 18 \\ \hline 0 \end{array}$$

$\frac{18}{45} = \frac{18 \div 9}{45 \div 9} = \frac{2}{5}$

HCF = 9

(e) $\frac{52}{65}$, HCF of 52 and 65

$$\begin{array}{r} 52\overline{)\ 65\ (2} \\ -\ 52 \\ \hline 13\ )\ 65\ (5 \\ -\ 65 \\ \hline 0 \end{array}$$

HCF = 13

$\frac{52}{65} = \frac{52 \div 13}{65 \div 13} = \frac{4}{5}$

Exercise 5.4

1. (a) $\frac{3}{4}, \frac{4}{5}$

LCM of 4 and 5 is 20.

$$\begin{array}{r|l} 2 & 4,\ 5 \\ \hline 2 & 2,\ 5 \\ \hline 5 & 1,\ 5 \\ \hline & 1,\ 1 \end{array}$$

LCM = 2 × 2 × 5

= 20

To make given fractions to equivalent fractions with denominators 40.

$\frac{3 \times 10}{4 \times 10} = \frac{30}{40}, \frac{4 \times 10}{5 \times 10} = \frac{40}{50}$

Since, 40 > 30 [Comparing numerators]

Hence, $\frac{4}{5} > \frac{3}{4}$

(b) $\frac{2}{5}, \frac{3}{7}$ LCM of 5 and 7

$$\begin{array}{r|l} 2 & 5,\ 7 \\ \hline 2 & 1,\ 7 \\ \hline & 1,\ 1 \end{array}$$

LCM = 5 × 7 = 35

To, make given fraction to equivalent fraction with denominators 35.

$\frac{2 \times 7}{5 \times 7} = \frac{14}{35}, \frac{3 \times 5}{7 \times 5} = \frac{15}{35}$

Since, $14 < 15$ [comparing numerators]

Hence, $\frac{2}{5} < \frac{3}{7}$

(c) $2\frac{2}{8} = \frac{8 \times 2 + 2}{8} = \frac{16 + 2}{8} = \frac{18}{8}$

$4\frac{1}{3} = \frac{3 \times 4 + 1}{3} = \frac{12 + 1}{3} = \frac{13}{3}$

LCM of 3 and 8 is 24

3	3, 8
2	1, 8
2	1, 4
2	1, 2
	1, 1

LCM = $3 \times 2 \times 2 \times 2 = 24$

To make, given fraction to equivalent fractions with denominator 24.

$\frac{18 \times 3}{8 \times 3} = \frac{54}{24}, \frac{13 \times 8}{3 \times 8} = \frac{104}{24}$

Since, $54 < 104$ [Comparing numberator]

$\therefore \frac{18}{8} < \frac{13}{3}$

Hence, $2\frac{2}{8} < 4\frac{1}{3}$

(d) $2\frac{3}{11}, 3\frac{2}{8}$

$2\frac{3}{11} = \frac{11 \times 2 + 3}{11} = \frac{22 + 3}{11} = \frac{25}{11}$

$3\frac{2}{8} = \frac{8 \times 3 + 2}{8} = \frac{24 + 2}{8} = \frac{26}{8}$

LCM of $\frac{25}{11}$ and $\frac{26}{8}$ is 88

11	11, 8
2	1, 8
2	1, 4
2	1, 2
	1, 1

LCM = $11 \times 2 \times 2 \times 2 = 88$

To make, given fraction to equivalent fractions with denominator 88.

$\frac{25 \times 8}{11 \times 8} = \frac{200}{88}, \frac{26 \times 11}{8 \times 11} = \frac{286}{88}$

Since, $200 < 286$ [Comparing numerator]

$\therefore \frac{200}{88} < \frac{286}{88}$

Hence, $2\frac{3}{11} < 3\frac{2}{8}$

2. (a) $\frac{4}{5}, \frac{3}{7}$

Cross multiplying $\frac{4}{5}$ and $\frac{3}{7}$

$\frac{4}{5} \times \frac{3}{7}$

$= 5 \times 3 = 15$

$4 \times 7 = 28$

$28 > 15$

Hence, $\frac{4}{5} > \frac{3}{7}$

(b) $\frac{3}{11}, \frac{3}{9}$

Cross multiplying $\frac{3}{11}$ and $\frac{3}{7}$

$\frac{3}{11} \times \frac{3}{7}$

$= 3 \times 7 = 21$

$= 3 \times 11 = 33$

$21 < 33$

Hence, $\frac{3}{11} < \frac{3}{9}$

(c) $2\frac{4}{5}, 2\frac{4}{13}$

$2\frac{4}{5} = \frac{5 \times 2 + 4}{5} = \frac{10 + 4}{5}$

$= \frac{14}{5}$

$2\frac{4}{13} = \frac{13 \times 2 + 4}{13} = \frac{26 + 4}{13} = \frac{30}{13}$

Cross multplying $\frac{14}{5}$ and $\frac{30}{13}$

$\frac{14}{5} \times \frac{30}{13}$

$14 \times 13 = 182$

$30 \times 5 = 150$

$182 > 150$

So, $\frac{14}{5} > \frac{30}{13}$

Hence, $2\frac{4}{5} > 2\frac{4}{13}$

(d) $5\frac{1}{6}$ or $5\frac{1}{4}$

$5\frac{1}{6} = \frac{6 \times 5 + 1}{6} = \frac{30 + 1}{6} = \frac{31}{6}$

$5\frac{1}{4} = \frac{4 \times 5 + 1}{4} = \frac{20 + 1}{4} = \frac{21}{4}$

$= \frac{21}{4}$

Cross–multiplying $\frac{31}{6}$ and $\frac{21}{4}$

$\frac{31}{6} \times \frac{21}{4}$

$31 \times 4 = 124$

$21 \times 6 = 126$

$124 > 126$

So, $\frac{31}{6} < \frac{21}{4}$

Hence, $5\frac{1}{6} < 5\frac{1}{4}$

3. (a) $\frac{3}{8}$ $\boxed{>}$ $\frac{2}{8}$ [3 > 2]

(b) $\frac{4}{11}$ $\boxed{<}$ $\frac{5}{11}$ [4 < 5]

(c) $\frac{2}{13}$ $\boxed{<}$ $\frac{4}{11}$

Cross multiplying $\frac{2}{13}$ and $\frac{4}{11}$

$\frac{2}{13} \times \frac{4}{11}$

$= 2 \times 11 = 22$

$13 \times 4 = 52$

$22 < 52$

$\frac{2}{13} < \frac{4}{11}$

(d) $\frac{5}{10}$ $\boxed{>}$ $\frac{4}{20}$

Cross multiplying $\frac{5}{10}$ and $\frac{4}{20}$

$\frac{5}{10} \times \frac{4}{20}$

$= 5 \times 20 = 100$

$= 4 \times 10 = 40$

$100 > 40$

$\frac{5}{10} > \frac{4}{20}$

4. (a) $\frac{9}{5}, \frac{4}{5}, \frac{15}{5}, 1\frac{2}{5} = \left[1\frac{2}{5} = \frac{5 \times 1 + 2}{5} = \frac{5 + 2}{5} = \frac{7}{5}\right]$

$\frac{4}{5} < \frac{7}{5} < \frac{9}{5} < \frac{15}{5}$ [4 < 7 < 9 < 15]

Hence, $\frac{4}{5} < \frac{7}{5} < \frac{9}{5} < \frac{15}{5}$

(b) $\frac{44}{25}, 6\frac{6}{25}, 1\frac{20}{25}, \frac{65}{25}$ $\left(1\frac{20}{25} = \frac{25 \times 1 + 20}{25}\right.$

$\left. = \frac{25 + 20}{25} = \frac{45}{25}\right)$

$\frac{44}{25} < \frac{45}{25} < \frac{65}{25} < \frac{156}{25}$ $\left(6\frac{6}{25} = \frac{25 \times 6 + 6}{25}\right.$

$\left. = \frac{150 + 6}{25} = \frac{156}{25}\right)$

$= \frac{44}{25} < 1\frac{20}{25} < \frac{65}{25} < 6\frac{6}{25}$

5. (a) $\frac{7}{8}, \frac{5}{12}, \frac{15}{16}, \frac{17}{24}$ [LCM of 8, 12, 16 and 24]

2	8, 12, 16, 24
2	4, 6, 8, 12
2	2, 3, 4, 6
2	1, 3, 2, 3
3	1, 3, 1, 3
	1, 1, 1, 1

LCM = $2 \times 2 \times 2 \times 2 \times 3$

$= 48$

So, $\frac{7 \times 6}{8 \times 6} = \frac{42}{48}, \frac{5 \times 4}{12 \times 4} = \frac{20}{48}, \frac{15 \times 3}{16 \times 3}$

$= \frac{45}{48}, \frac{17 \times 2}{24 \times 4} = \frac{34}{48}$

$\frac{20}{48} < \frac{34}{48} < \frac{42}{48} < \frac{45}{48}$ [As 20 < 34 < 42 < 45]

$\frac{20}{48} < \frac{34}{48} < \frac{42}{48} < \frac{45}{48}$

Hence, $\frac{15}{16} > \frac{7}{8} > \frac{17}{24} > \frac{5}{12}$

(b) $\frac{2}{5}, \frac{3}{10}, \frac{7}{15}\frac{1}{2}$ (LCM of 5, 10, 15 and 2 is 30)

2	5, 10, 15, 2
2	5, 5, 15, 1
2	5, 5, 5, 1
	1, 1, 1, 1

LCM = $2 \times 3 \times 5 = 30$

So, $\frac{2 \times 6}{5 \times 6} = \frac{12}{30}, \frac{3 \times 3}{10 \times 3} = \frac{9}{30}, \frac{7 \times 2}{15 \times 2} =$

$\frac{14}{30}, \frac{1 \times 15}{2 \times 15} = \frac{15}{30}$

$\frac{15}{30} > \frac{14}{30} > \frac{13}{30} > \frac{9}{30}$

Hence, $\frac{1}{2} > \frac{7}{15} > \frac{2}{5} > \frac{3}{10}$

6. Quantity of Sanitizer in Rohit's bottle: $\frac{4}{5}$

Quantity of Sanitizer in Mohit's bottle: $\frac{3}{8}$

$\frac{4}{5}, \frac{3}{8}$ [LCM of 5 and 8 is 40]

5	5, 8
2	1, 8
2	1, 4
2	1, 2
	1, 1

LCM = $5 \times 2 \times 2 \times 2 = 40$

$\frac{4}{5} = \frac{4 \times 8}{5 \times 8} = \frac{32}{40}, \frac{3 \times 5}{8 \times 5} = \frac{15}{40}$

$\frac{32}{40} > \frac{15}{40}$ [32 > 15]

Therefore, $\frac{4}{5} > \frac{3}{8}$

Answer: Rohit has more sanitizer.

Exercise 5.5

1. (a) $\frac{3 + 2}{15} = \frac{5}{15}$

(b) $\frac{2}{8} + \frac{3}{8} = \frac{2 + 3}{8} = \frac{5}{8}$

(c) $\frac{4 + 5}{9} = \frac{9}{9}$

(d) $\frac{3}{14} + \frac{6}{14} = \frac{3 + 6}{14} = \frac{9}{14}$

2. (a) $\frac{3}{7} + \frac{5}{14}$

LCM of 7 and 14 is 14.

2	7, 14
7	7, 7
	1, 1

Making denominaotors as 14

$\frac{3 \times 2}{7 \times 2} = \frac{6}{14}, \frac{5 \times 1}{14 \times 1} = \frac{5}{14}$

$\frac{6}{14} + \frac{5}{14} = \frac{6 + 5}{14} = \frac{11}{14}$

(b) $\frac{5}{6} + \frac{8}{12}$

LCM of 6 and 12 is 12

5	6, 12
2	3, 6
3	3, 3
	1, 1

LCM = 2 × 2 × 3 = 12

Making denominators as 14.

$\frac{5 \times 2}{6 \times 2} = \frac{10}{12}, \frac{8 \times 1}{12 \times 1} = \frac{8}{12}$

$\frac{10}{12} + \frac{8}{12} = \frac{10 + 8}{12} = \frac{18}{12}$

(c) $2 + 1\frac{1}{6} + \frac{1}{8}$

$1\frac{1}{6} = \frac{6 \times 1 + 1}{6} = \frac{6 + 1}{6} = \frac{7}{6}$

$2 = \frac{2}{1}$

LCM of 1, 6 and 8 is 24.

2	1, 6, 8
2	1, 3, 4
2	1, 3, 2
3	1, 3, 1
	1, 1, 1

LCM = 2 × 2 × 2 × 3 = 24

To make denominator as 24.

$\frac{2 \times 24}{1 \times 24} = \frac{48}{24}, \frac{7 \times 4}{6 \times 4} = \frac{28}{24}, \frac{1 \times 3}{8 \times 3} = \frac{3}{24}$

$\frac{48}{24} + \frac{28}{24} + \frac{3}{24}$

$= \frac{48 + 28 + 3}{24} = \frac{76 + 3}{24} = \frac{79}{24}$

(d) $2\frac{5}{6} + 1\frac{2}{3} + \frac{1}{4}$

$\left(2\frac{5}{6} = \frac{6 \times 2 + 5}{6} = \frac{12 + 5}{6} = \frac{17}{6}\right)$

$\left(1\frac{2}{3} = \frac{3 \times 1 + 2}{3} = \frac{3 + 2}{3} = \frac{5}{3}\right)$

LCM 6, 3, and 4 is 12.

3	3, 6, 4
2	1, 2, 4
2	1, 1, 2
	1, 1, 1

LCM = 3 × 2 × 2 = 12

To make denominator as 12.

$\frac{17 \times 2}{6 \times 2} = \frac{34}{12}, \frac{5 \times 4}{3 \times 4} = \frac{20}{12}, \frac{1 \times 3}{4 \times 3} = \frac{3}{12}$

$\frac{34}{12} + \frac{20}{12} + \frac{3}{12} = \frac{34 + 20 + 3}{12} = \frac{57}{12}$

(e) $2\frac{1}{5} + 3 + 1\frac{4}{9}$

$\left(2\frac{1}{5} = \frac{5 \times 2 + 1}{5} = \frac{10 + 1}{5} = \frac{11}{5}\right)$

$\left(3 = \frac{3}{1}\right)$

LCM of 1, 5, and 9 is 45

$\left(1\frac{4}{9} = \frac{9 \times 1 + 4}{9} = \frac{9 + 4}{9} = \frac{13}{9}\right)$

5	1, 5, 9
3	1, 1, 9
3	1, 1, 3
	1, 1, 1

5 × 3 × 3 = 45

To make denominators as 45.

$\frac{11 \times 9}{5 \times 9} = \frac{99}{45}, \frac{3 \times 45}{1 \times 45} = \frac{135}{45}, \frac{13 \times 5}{9 \times 5} = \frac{65}{45}$

$\frac{99}{45} + \frac{135}{45} + \frac{65}{45} = \frac{99 + 135 + 65}{45} = \frac{299}{45}$

(f) $3\frac{7}{8} + 5\frac{5}{12} + 2\frac{3}{4}$ $\left(3\frac{7}{8} = \frac{8 \times 3 + 7}{8} = \frac{31}{8}\right)$

$\left(5\frac{5}{12} = \frac{12 \times 5 + 5}{12} = \frac{60 + 5}{12} = \frac{65}{12}\right)$

$\left(2\frac{3}{4} = \frac{4 \times 2 + 3}{4} = \frac{8 + 3}{4} = \frac{11}{4}\right)$

LCM of 8, 12 and 4 is 24

2	8, 12, 4
2	4, 6, 2
2	2, 3, 1
3	1, 3, 1
	1, 1, 1

LCM = $2 \times 2 \times 2 \times 3 = 24$

$\frac{31 \times 3}{8 \times 3} = \frac{93}{24}, \frac{65 \times 2}{12 \times 2} = \frac{130}{24}, \frac{11 \times 6}{4 \times 6} = \frac{66}{24}$

$\frac{93}{24} + \frac{130}{24} + \frac{66}{24} = \frac{93 + 130 + 66}{24} = \frac{289}{24}$

(g) $5\frac{5}{6} + 1\frac{3}{8} + 4\frac{7}{12}$

$\left(5\frac{5}{6} = \frac{60 \times 5 + 5}{6} = \frac{30 + 5}{6} = \frac{35}{6}\right)$

$\left(5\frac{3}{8} = \frac{8 \times 1 + 3}{8} = \frac{8 + 3}{8} = \frac{11}{18}\right)$

$\left(4\frac{7}{12} = \frac{12 \times 4 + 7}{12} = \frac{48 + 7}{12} = \frac{55}{12}\right)$

LCM of 6, 8 and 12 is 24

2	6, 8, 12
2	3, 4, 6
2	3, 2, 3
3	3, 1, 3
	1, 1, 1

LCM = $2 \times 2 \times 2 \times 3 = 24$

$\frac{11 \times 3}{8 \times 3} = \frac{33}{24}, \frac{35 \times 4}{6 \times 4} = \frac{140}{24}, \frac{55 \times 2}{12 \times 2} = \frac{110}{24} = \frac{33 + 140 + 110}{24} = \frac{283}{24}$

(h) $12\frac{2}{5} + 13\frac{1}{7} + 2$

$\left(12\frac{2}{5} = \frac{5 \times 12 + 2}{5} = \frac{62}{5}\right)$

$\left(13\frac{1}{7} = \frac{7 \times 13 + 1}{7} = \frac{91 + 1}{7} = \frac{92}{7}\right)$

$\left(2 = \frac{2}{1}\right)$

LCM 5, 7 and is 35.

5	5, 7, 1
7	1, 7, 1
	1, 1, 1

LCM: $5 \times 7 = 35$

To make denominator as 35

$\frac{62 \times 7}{5 \times 7} = \frac{434}{35}, \frac{92 \times 5}{7 \times 5} = \frac{460}{35}, \frac{2 \times 35}{1 \times 35} = \frac{70}{35}$

$\frac{434}{35} + \frac{460}{35} + \frac{70}{35} = \frac{434 + 460 + 70}{35} = \frac{964}{35}$

(i) $8\frac{11}{14} + 3\frac{8}{21} + 1\frac{1}{7}$

$\left(8\frac{11}{14} = \frac{14 \times 8 + 11}{14} = \frac{112 + 11}{14}, \frac{62}{5}\right)$

$\left(3\frac{8}{21} = \frac{21 \times 3 + 8}{21} = \frac{63 + 8}{21}, \frac{71}{21}\right)$

$\left(1\frac{1}{7} = \frac{7 \times 1 + 1}{7} = \frac{7 + 1}{7}, \frac{8}{7}\right)$

LCM of 14, 21, and 7 is 42

2	14, 21, 7
3	7, 21, 7
7	7, 7, 7
	1, 1, 1

LCM = $2 \times 3 \times 7 = 42$

$\frac{123 \times 3}{14 \times 3} = \frac{369}{42}, \frac{71 \times 2}{21 \times 2} = \frac{142}{42}, \frac{8 \times 6}{7 \times 6} = \frac{48}{42}$

$\frac{369}{42} + \frac{142}{42} + \frac{48}{42} = \frac{369 + 142 + 48}{42} = \frac{559}{42}$

3. (a) Weight of empty basket = $1\frac{4}{5}$kg = $\frac{5 \times 1 + 4}{5} = \frac{5 + 4}{5} = \frac{9}{5}$kg

Weight of Oranges: $2\frac{1}{3}$kg = $\frac{3 \times 2 + 1}{3} = \frac{6 + 1}{3} = \frac{7}{3}$kg

Weight of basket and Oranges together: $\frac{9}{5}$ kg + $\frac{7}{3}$ [LCM of 5 and 3 is 15]

5	5, 3
3	1, 3
	1, 1

To make denominator as 15

$\frac{9 \times 3}{5 \times 3} = \frac{27}{15}, \frac{7 \times 5}{3 \times 5} = \frac{35}{15}$

$= \frac{27}{15} + \frac{35}{15} = \frac{62}{15}$

Answer: Weight of basket and Oranges together is $\frac{62}{15}$kg

(b) Length of cloth for my shirt: $1\frac{1}{2}$m

$= \frac{2 \times 1 + 1}{2} = \frac{2 + 1}{2} = \frac{3}{2}$

Length of cloth for my brother's shirt: $1\frac{2}{3}$m

$= \frac{3 \times 1 + 2}{3} = \frac{3 + 2}{3} = \frac{5}{3}$

Total cloth purchased = $1\frac{1}{2}$m + $1\frac{2}{3}$m

$= \frac{3}{2} + \frac{5}{3}$ [LCM of 2 and 3 is 6]

2	2, 3
3	1, 3
	1, 1

LCM = 2 × 3 = 6

To make denominators as 6.

$\frac{3 \times 6}{2 \times 6} = \frac{18}{12}, \frac{5 \times 4}{3 \times 4} = \frac{20}{12}$

$\frac{18}{12} + \frac{20}{12} = \frac{18 + 20}{12} = \frac{38}{12}$m

Answer: Total cloth purchased is of $\frac{38}{12}$m

(c) Length of cloth purchased by Anita: $6\frac{3}{4}$

$= \frac{4 \times 6 + 3}{4} = \frac{24 + 3}{4} = \frac{27}{4}$

Length of cloth purchased by Radhika: $8\frac{1}{2}$m

$= \frac{2 \times 8 + 1}{2} = \frac{16 + 1}{2} = \frac{17}{2}$

Length of cloth purchased by Ishika: $5\frac{3}{8}$m

$= \frac{8 \times 5 + 3}{8} = \frac{40 + 3}{8} = \frac{43}{8}$

Total cloth purchased = $6\frac{3}{4}$m + $8\frac{1}{2}$m + $5\frac{3}{8}$m

$= \frac{27}{4} + \frac{17}{2} + \frac{43}{8}$ [LCM of 2, 4, and 8 is 8]

2	4, 2, 8
2	2, 1, 4
2	1, 1, 2
	1, 1, 1

LCM = 2 × 2 × 2 = 8

To make denominators as 8

$\frac{27 \times 2}{4 \times 2} = \frac{54}{8}, \frac{17 \times 4}{2 \times 4} = \frac{68}{8}, \frac{43 \times 1}{8 \times 1} = \frac{43}{8}$

$\frac{54}{8} + \frac{68}{8} + \frac{43}{8} = \frac{165}{8}$

Answer: Total $\frac{165}{8}$m of cloth is purchased.

(d) Thickness of first cardboard: $3\frac{5}{16}$cm

$= \frac{16 \times 3 + 5}{16} = \frac{48 + 5}{16} = \frac{53}{16}$

Thickness of second cardboard: $4\frac{3}{8}$cm

$= \frac{8 \times 4 + 3}{8} = \frac{32 + 3}{8} = \frac{35}{8}$

Combined thickness of the Cardboards: Thickness of first Cardboard + Thickness of second Cardboard

= $3\frac{5}{16}$cm + $4\frac{3}{8}$cm

$= \frac{53}{16} + \frac{35}{8}$ [LCM of 16 and 8 is 16]

2	8, 16
2	4, 8
2	2, 4
2	1, 2
	1, 1

To make denominators equal.

$\frac{53 \times 1}{16 \times 1} = \frac{53}{16}, \frac{35 \times 2}{8 \times 2} = \frac{70}{16}$

$\frac{53}{16} + \frac{70}{16} = \frac{53 + 70}{16} = \frac{123}{16}$cm

Exercise 5.6

1. (a) $\frac{3 - 2}{7} = \frac{1}{7}$

(b) $\frac{9}{10} - \frac{4}{10} = \frac{9 - 4}{10} = \frac{5}{10}$

(c) $\frac{13}{9} - \frac{9}{9} = \frac{13 - 9}{9} = \frac{4}{9}$

(d) $\frac{14}{11} - \frac{5}{11} = \frac{14 - 5}{11} = \frac{9}{11}$

2. (a) $\frac{17}{44} - \frac{2}{11}$

[LCM of 44 and 11 is 44]

2	11, 44
2	11, 22
11	11, 11
	1, 1

To make denominator 44.

$\frac{17 \times 1}{44 \times 1} = \frac{17}{44}, \frac{2 \times 4}{11 \times 4} = \frac{8}{44}$

$\frac{17}{44} - \frac{8}{44} = \frac{17 - 8}{44} = \frac{9}{44}$

(b) $\frac{3}{4} - \frac{5}{12}$

LCM of 4 and 12 is 12

2	4, 12
2	2, 6
3	1, 3
	1, 1

LCM = $2 \times 2 \times 3 = 12$

To make denominator 12;

$\frac{3 \times 3}{4 \times 3} = \frac{9}{12}, \frac{5 \times 1}{12 \times 1} = \frac{5}{12}$

$\frac{9}{12} - \frac{5}{12} = \frac{9 - 5}{12} = \frac{4}{12}$

(c) $18\frac{4}{5} - 7\frac{9}{10}$

$\left(18\frac{4}{5} = \frac{5 \times 18 + 4}{5} = \frac{90 + 4}{5} = \frac{94}{5}\right)$

$\left(7\frac{9}{10} = \frac{10 \times 7 + 9}{10} = \frac{70 + 9}{10} = \frac{79}{10}\right)$

LCM of 5 and 10 is 10

2	5, 10
5	5, 5
	1, 1

LCM = $2 \times 5 = 10$

$\frac{94 \times 2}{5 \times 2} = \frac{188}{10}, \frac{79 \times 10}{10 \times 1} = \frac{79}{10}$

$\frac{188}{10} - \frac{79}{10} = \frac{188 - 79}{10} = \frac{109}{10}$

(d) $8\frac{3}{8} - 3\frac{1}{5}$

$\left(3\frac{3}{8} = \frac{8 \times 8 + 3}{8} = \frac{64 + 3}{8} = \frac{67}{8}\right)$

$\left(3\frac{1}{5} = \frac{5 \times 3 + 1}{5} = \frac{15 + 1}{5} = \frac{16}{5}\right)$

LCM of 8 and 5 is 40

2	8, 5
2	4, 5
2	2, 5
5	1, 5
	1, 1

LCM = $2 \times 2 \times 2 \times 2 \times 5 = 40$

To make denominators as 40

$\frac{67 \times 5}{8 \times 5} = \frac{335}{40}, \frac{16 \times 8}{5 \times 8} = \frac{128}{40}$

$\frac{335}{40} - \frac{128}{40} = \frac{335 - 128}{40} = \frac{207}{40}$

(e) $8\frac{8}{17} - \frac{21}{51}$

$\left(8\frac{8}{17} = \frac{17 \times 8 + 8}{17} = \frac{136 + 8}{17} = \frac{144}{17}\right)$

LCM of 17 and 51 is 51

3	17, 51
17	17, 17
	1, 1

LCM = $3 \times 17 = 51$

To make denomintors as 51

$\frac{144 \times 3}{17 \times 3} = \frac{432}{51}, \frac{21 \times 1}{51 \times 3} = \frac{21}{51}$

$\frac{432}{51} - \frac{21}{51} = \frac{411}{51}$

(f) $19\frac{11}{18} - 17\frac{3}{4}$

$\left(19\frac{11}{18} = \frac{18 \times 19 + 11}{18} = \frac{342 + 11}{18} = \frac{353}{18}\right)$

$\left(17\frac{3}{4} = \frac{4 \times 17 + 3}{4} = \frac{68 + 3}{4} = \frac{71}{4}\right)$

LCM of 18 and 4 is 36.

2	18, 4
2	9, 2
3	9, 1
3	3, 1
	1, 1

LCM = $2 \times 2 \times 3 \times 3 = 36$

To make denominators as 36

$\frac{353 \times 2}{18 \times 2} = \frac{706}{36}, \frac{71 \times 9}{4 \times 9} = \frac{639}{36}$

$\frac{706}{36} - \frac{639}{36} = \frac{67}{36}$

3. (a) $4\frac{3}{5} - \frac{2}{3} + \frac{3}{10}$

$\left(4\frac{3}{5} = \frac{5 \times 4 + 3}{5} = \frac{20 + 3}{5} = \frac{23}{5}\right)$

LCM of 5, 3 and 10 is 30

3	5, 3, 10
2	5, 1, 10
5	5, 1, 5
	1, 1, 1

LCM = $3 \times 2 \times 5 = 30$

To make denominators 30

$\frac{23 \times 6}{5 \times 6} = \frac{138}{30}, \frac{2 \times 10}{3 \times 10} = \frac{20}{30}, \frac{3 \times 3}{10 \times 3} = \frac{9}{30}$

$\frac{138}{30} - \frac{20}{30} + \frac{9}{30} = \frac{138 - 20 + 9}{30} = \frac{138 - 11}{30}$

$= \frac{127}{30}$

(b) $5\frac{7}{8} + 2\frac{2}{3} - \frac{11}{12}$

$\left(2\frac{2}{3} = \frac{3 \times 2 + 2}{3} = \frac{6 + 2}{9} = \frac{8}{3}\right)$

$\left(5\frac{7}{8} = \frac{8 \times 5 + 7}{8} = \frac{40 + 7}{8} = \frac{47}{8}\right)$

LCM of 8, 3 and 12 is 24

2	8, 3, 12
2	4, 3, 6
3	2, 3, 3
2	2, 1, 1
	1, 1, 1

LCM = $2 \times 2 \times 3 \times 2 = 24$

To make denominator 24.

$\frac{8 \times 8}{3 \times 8} = \frac{64}{24}, \frac{47 \times 3}{8 \times 3} = \frac{141}{24}, \frac{11 \times 2}{12 \times 2}$

$= \frac{22}{24}$

$\frac{64}{24} + \frac{141}{24} - \frac{22}{24} = \frac{64 + 141 - 22}{24} =$

$\frac{205 - 22}{24} = \frac{183}{24}$

(c) $4\frac{7}{21} - 1\frac{5}{6} - \frac{3}{4}$

$\left(4\frac{7}{21} = \frac{21 \times 4 + 7}{21} = \frac{84 + 7}{21} = \frac{91}{21}\right)$

$\left(1\frac{5}{6} = \frac{6 \times 1 + 5}{6} = \frac{6 + 5}{6} = \frac{11}{6}\right)$

LCM of 21, 6 and 4 is 2

2	21, 6, 4
2	21, 3, 2
3	21, 3, 1
3	7, 3, 1
7	7, 1, 1
	1, 1, 1

LCM = $2 \times 2 \times 3 \times 3 \times 7 = 252$

$\frac{91 \times 12}{21 \times 12} = \frac{1092}{252}, \frac{11 \times 42}{6 \times 42} = \frac{462}{252},$

$\frac{3 \times 63}{4 \times 63} = \frac{189}{252}$

$\frac{1092}{252} - \frac{462}{252} - \frac{189}{252}$

$= \frac{1092 - 462 - 189}{252}$

$= \frac{441}{252} \div \frac{3}{3} = \frac{147}{84}$

(d) $8\frac{1}{3} - 2\frac{3}{5} + 2\frac{1}{2} - \frac{1}{2}$

$\left(8\frac{1}{3} = \frac{3 \times 8 + 1}{3} = \frac{24 + 1}{3} = \frac{28}{5}\right)$

$\left(2\frac{3}{5} = \frac{5 \times 2 + 1}{5} = \frac{10 + 3}{5} = \frac{13}{5}\right)$

$\left(2\frac{1}{2} = \frac{2 \times 2 + 1}{2} = \frac{4 + 1}{1} = \frac{5}{2}\right)$

LCM of 3, 5, and 2 is 30.

3	3, 5, 2
5	1, 5, 2
2	1, 1, 2
	1, 1, 1

LCM = $3 \times 5 \times 2 = 30$

To make denominators 30.

$\frac{25 \times 10}{3 \times 10} = \frac{250}{30}, \frac{13 \times 6}{5 \times 6} = \frac{78}{30}, \frac{5 \times 15}{2 \times 15}$

$= \frac{75}{30}, \frac{1 \times 15}{2 \times 15} = \frac{15}{30}$

$\frac{250}{30} - \frac{78}{30} + \frac{75}{30} + \frac{15}{30}$

$\frac{250 - 78 - 75 - 15}{30} = \frac{232}{30}$

4. (a) Quantity of water in the versel: $\frac{4}{7}$ litres

Quantity of water cat drank: $\frac{1}{12}$ litres

Water left in the versel: Quantity of water in the vessel – Quantity of water cat drank

$= \frac{4}{7} - \frac{1}{12}$ (LCM of 7 and 12 is 84)

To make denominator 84

$\frac{4 \times 12}{7 \times 12} = \frac{48}{84}$, $\frac{1 \times 7}{12 \times 7} \frac{7}{84} = \frac{48 - 7}{84}$

$= \frac{41}{84}$

$\frac{40 \div 4}{84 \div 4} = \frac{10}{21}$

Answer: $\frac{41}{84}$ litres of water is left in the vessel.

(b) Length Akash Jumped: $6\frac{7}{8}$m $= \frac{8 \times 6 + 7}{8}$

$= \frac{48 + 7}{8}$m $= \frac{55}{8}$m

Length Prakash jumed: Length of Akash jump – $1\frac{1}{3}$m = $(1\frac{1}{3}$ $\frac{3 \times 1 + 1}{3} = \frac{3 + 1}{3}$

m $= \frac{4}{3}$m

$\frac{55}{8} - \frac{4}{3}$ [LCM of 8 and 3 is 24]

To make denominator 24

$\frac{55 \times 3}{8 \times 3} = \frac{165}{24}$, $\frac{4 \times 8}{3 \times 8} = \frac{32}{24}$

$\frac{165}{24} - \frac{32}{24} = \frac{165 - 32}{24} = \frac{133}{24}$

Answer: Length of Prakash jump is $\frac{133}{24}$m.

(c) Weight of fruits in basket = $19\frac{1}{3}$kg

$= \frac{3 \times 19 + 1}{3} = \frac{57 + 1}{3} = \frac{58}{3}$kg

Weight of Bananas = $8\frac{1}{9}$kg $= \frac{9 \times 8 + 1}{9}$

$= \frac{72 + 1}{9} = \frac{73}{9}$kg

Weight of grapes = $3\frac{1}{6}$kg = $3\frac{1}{6}$ = $\frac{6 \times 3 + 1}{6}$

$= \frac{18 + 1}{6} = \frac{19}{6}$kg

Weight of pears: Weight of fruits in basket – [Weight of Bananas + Weight of Grapes)

$= \frac{58}{3}$kg – $(\frac{73}{9}$kg – $\frac{19}{6}$kg)

LCM of 3, 9 and 6 is 18

$\frac{73 \times 2}{9 \times 2} = \frac{146}{18}$, $\frac{58 \times 6}{3 \times 6} = \frac{348}{18}$, $\frac{19 \times 3}{6 \times 3}$

$= \frac{57}{18}$

$\frac{348}{18}\left(\frac{146}{18} + \frac{57}{18}\right) = \frac{348}{18} = \left(\frac{146 + 57}{18}\right)$

$= \frac{348 - 146 + 57}{9} = \frac{348 - 203}{18} = \frac{145}{18}$

$= 8\frac{1}{18}$

Answer: Weight of pears is $8\frac{1}{18}$kg

(d) Quantity of milk chaayank's mother bought: $3\frac{2}{5}l = \frac{5 \times 3 + 2}{5} = \frac{15 + 2}{5} = \frac{17}{5}l$

Quantity of milk Chayank drank: $\frac{1}{5}l$

Milk left at home: Quantity of milk chaayank's mother bougth – Quantity of milk chaayank drank

$= \frac{17}{5} - \frac{1}{15}$ [LCM of 5 and 15 is 15]

Making denominators as 15

$\frac{17 \times 3}{5 \times 3} = \frac{51}{15}$, $\frac{1 \times 1}{15 \times 1} = \frac{1}{15}$

$= \frac{51}{15} \frac{-1}{15} = \frac{51 - 1}{15} = \frac{50}{15} = \frac{50 \div 5}{15 \div 5} = \frac{10}{3}$

Answer: $\frac{10}{3}l$ of milk is left at home.

Exercise 5.7

1. (a) $\frac{3}{8}$ by 5

$\frac{3 \times 5}{8} = \frac{15}{8}$

(b) $\frac{20}{25}$ by 5

$\frac{{}^{4}\cancel{20} \times \cancel{5}^{1}}{\cancel{25}_{\cancel{5}_{1}}} = \frac{4}{1}$

(c) $\frac{7}{20}$ by 12

$\frac{7 \times \cancel{12}^{\cancel{6}^{3}}}{\cancel{20}_{\cancel{10}_{5}}} = \frac{21}{5}$

2. (a) $\frac{2}{6} \times \frac{3}{5} = \frac{2 \times \cancel{3}^{1}}{{}_{2}\cancel{6} \times 5} = \frac{\cancel{2}^{1}}{{}_{5}\cancel{10}} = \frac{1}{5}$

(b) $\frac{6}{9} \times \frac{3}{8} = \frac{{}^{1}\cancel{3}\cancel{6} \times \cancel{3}^{1}}{{}_{1}\cancel{3}\cancel{9} \times \cancel{8}_{4}} = \frac{1}{4}$

(c) $\frac{10}{15} \times \frac{1}{6}$ $\frac{{}^{1}\cancel{2}\cancel{10} \times 1}{{}_{3}\cancel{15} \times \cancel{6}_{3}} = \frac{1}{9}$

(d) $\frac{3}{4} \times \frac{5}{6} \times \frac{2}{3} = \frac{{}^{1}\cancel{3} \times 5 \times \cancel{2}^{1}}{{}_{2}\cancel{4} \times 6 \times \cancel{3}_{1}} = \frac{5}{12}$

(e) $\frac{3}{5} \times \frac{1}{4} \times \frac{6}{8} = \frac{3 \times 1 \times \cancel{6}^{3}}{5 \times \cancel{4}_{2} \times 8} = \frac{9}{80}$

(f) $\frac{2}{4} \times \frac{1}{5} \times \frac{7}{9} = \frac{{}^{1}\cancel{2} \times 1 \times 7}{{}_{2}\cancel{4} \times 5 \times 9} = \frac{7}{90}$

3. (a) Quantity of Juice purcheased by Sunil in a day: $2\frac{1}{2}$ litres $= \frac{2 \times 2 + 1}{2} = \frac{4 + 1}{2} = \frac{5}{2}$litres

Number of days in a week = 7

Quantity of Juice purchased by Sunil in a week = Juice purchased in one day × Number of days in a week

$= \frac{5}{2} \times 7 = \frac{35}{2} l$

$= 17.5 l$

Answer: Sunil has purchased 17.5 litres of juice in a week.

(b) Amount of work completed in 1 hour: $\frac{1}{3}$ of work

Amount of work completed in $2\frac{1}{5}$ hours: Work completed in one hour $2\frac{1}{5}$

$= \frac{1}{3} \times 2\frac{1}{5} \left(2\frac{1}{5} = \frac{5 \times 2 + 1}{5} = \frac{10 + 1}{5} = \frac{11}{5}\right)$

$= \frac{1}{3} \times \frac{11}{5} = \frac{11}{15}$

Answer: $\frac{11}{15}$ part of work is completed in 2 $\frac{1}{5}$ hours.

(c) Number of friends ate pizza: 4

Amount of pizza each ate = $\frac{1}{8}$ of pizza

Total pizza eaten: Number of friends × Amount of pizza each ate

$\frac{1}{\cancel{4}_1} \times \frac{1}{\cancel{8}_2} = \frac{1}{2}$

Answer: $\frac{1}{2}$ Part of pizza is eaten by all of them

(d) Weight of an object on moon = 6 times when measured on Earth

Weight of the object on moon = $2\frac{3}{5}$kg

Weight of the object on Earth = $2\frac{3}{5}$kg × 6

$\left(2\frac{3}{5} = \frac{5 \times 2 + 3}{5} = \frac{10 + 3}{5} = \frac{13}{5}\right)$

$\frac{13}{5}$kg × 6 = $\frac{78}{5}$kg

Answer: $\frac{78}{5}$kg will the mass of the object on Earth which weight $2\frac{3}{5}$kg on moon.

Exercise 5.8

1. (a) $\frac{1}{16}$ (b) $\frac{7}{5}$ (c) $\frac{1}{10}$

(d) $\frac{1}{72}$ (e) $\frac{40}{18}$ (f) $\frac{9}{3}$

(g) $\frac{30}{24}$ (h) $\frac{5}{20}$

2. (a) $\frac{3}{6} \div 6$

$= \frac{3}{6} \times \frac{1}{6} = \frac{^1\cancel{3} \times 1}{6 \times \cancel{6}_2} = \frac{1}{12}$

(b) $\frac{6}{10} \div 12$

$\frac{6}{10} \times \frac{1}{12} = \frac{^1\cancel{6} \times 1}{10 \times \cancel{12}_2} = \frac{1}{20}$

(c) $\frac{16}{20} \div 8$

$\frac{^2\cancel{16} \times 1}{20 \times \cancel{8}_1} = \frac{2}{20} = \frac{1}{10}$

(d) $3 \div \frac{5}{7}$

$= 3 \times \frac{7}{5} = \frac{3 \times 7}{5} = \frac{21}{5}$

(e) $7 \div \frac{9}{11}$

$\frac{7}{1} \times \frac{11}{9}$

$= \frac{7 \times 11}{1 \times 9} = \frac{77}{9}$

(f) $15 \div \frac{3}{5}$

$\frac{15}{1} \times \frac{5}{3}$

$\frac{^5\cancel{15} \times 5}{1 \times \cancel{3}_1} = \frac{25}{1}$

(g) $\frac{42}{72} \div \frac{25}{18}$

$\frac{42}{72} \times \frac{18}{25}$

$\frac{^{21}\cancel{42} \times \cancel{18}^1}{\cancel{72}_4 \times 25} = \frac{21}{50}$

(h) $\frac{12}{7} \div 4$

$\frac{12}{7} \times \frac{1}{4}$

$\frac{^3\cancel{12} \times 1}{7 \times \cancel{4}_1} = \frac{3}{7}$

3. (a) $\frac{3}{7} \div \frac{1}{7}$

$\frac{3}{7} \times \frac{7}{1}$

$= \frac{3 \times \cancel{7}^1}{\cancel{7}_1 \times 1} = \frac{3}{1}$

(b) $\frac{4}{9} \div \frac{1}{9}$

$\frac{4}{9} \times \frac{9}{1}$

$\frac{4 \times \cancel{9}^1}{\cancel{9}_1 \times 1} = \frac{4}{1}$

(c) $\frac{3}{10} \div \frac{6}{10}$

$\frac{3}{10} \times \frac{6}{10}$

$\frac{^1\cancel{3} \times \cancel{10}^1}{_1\cancel{10} \times \cancel{6}_2} = \frac{1}{2}$

(d) $\frac{3}{8} \div \frac{2}{15}$

$\frac{3}{8} \times \frac{15}{2}$

$\frac{3 \times 15}{8 \times 2} = \frac{45}{16}$

(e) $3\frac{1}{3} \div 2\frac{1}{10}$

$3\frac{1}{3} = \frac{3 \times 3 + 1}{3} = \frac{9 + 1}{3} = \frac{10}{3}$

$2\frac{1}{10} = \frac{10 \times 2 + 1}{10} = \frac{20 + 1}{10} = \frac{21}{10}$

$\frac{10}{3} \div \frac{21}{10}$

$= \frac{10}{3} \times \frac{10}{21} = \frac{10 \times 10}{3 \times 21}$

$= \frac{100}{63}$

(f) $5\frac{1}{3} \div 5\frac{1}{5}$

$5\frac{1}{3} = \frac{3 \times 5 + 1}{3} = \frac{15 + 1}{3} = \frac{16}{3}$

$5\frac{1}{5} = \frac{5 \times 5 + 1}{5} = \frac{25 + 1}{5} = \frac{26}{5}$

$\frac{16}{3} \div \frac{26}{5} = \frac{16}{3} \times \frac{5}{26} = \frac{80}{78}$

(g) $7 \div \frac{2}{3}$

$\frac{7}{1} \times \frac{3}{2}$

$= \frac{7 \times 3}{1 \times 2} = \frac{21}{2}$

(h) $\frac{9}{11} \div 6$

$\frac{9}{11} \times \frac{1}{6}$

$\frac{\cancel{9}^{3} \times 1}{11 \times \cancel{6}_{2}}$

$= \frac{3}{22}$

4. (a) Length of rope: $8\frac{1}{3}$m

Number of pieces rope has been cutted: 25

Length of each piece: Length of rope ÷ Number of pieces

$= 8\frac{1}{3} \div 25 \left(8\frac{1}{3} = \frac{3 \times 8 + 1}{3} = \frac{24 + 1}{3} = \frac{25}{3}\right)$

$= \frac{25}{3} \div 25 = \frac{25}{3} \times \frac{1}{25} = \frac{\cancel{25}^{1} \times 1}{3 \times \cancel{25}_{1}} = \frac{1}{3}$m

Answer: Length of each piece is $\frac{1}{3}$m

(b) Quantity of Grapes priyanka has: $3\frac{1}{2}$kg

Number of friends Grapes have been equally divided: 4

Quantity of Grapes each friend got = Quantity of grapes ÷ Number of friends

$= 3\frac{1}{2} \div 4$

Answer: Each friend got $\frac{7}{8}$kg of grapes

$= \frac{7}{2} \div 4 = \frac{7}{2} \times \frac{1}{4} = \frac{7}{8}$kg

(c) Length of ribbon = $5\frac{1}{4}$m

Length of cutted small equal pieces = $\frac{3}{4}$m

Number of pieces: Length of ribbon ÷ Length of pieces

$= 5\frac{1}{4}\text{m} \div \frac{3}{4}\text{m} \left(5\frac{1}{4} = \frac{4 \times 5 + 1}{4} = \frac{20 + 1}{4} = \frac{21}{4}\right)$

$= \frac{21}{4}\text{m} \div \frac{3}{4} = \frac{21}{4} \times \frac{4}{3} = \frac{^{7}\cancel{21} \times \cancel{4}^{1}}{_{1}\cancel{4} \times \cancel{3}_{1}} = 7$ pieces.

(d) Number of $\frac{1}{5}$kg boxes can be made with $1\frac{1}{2}$kg of Choclate

$= 1\frac{1}{2}\text{kg} \div \frac{1}{5}\text{kg}$

$\left(1\frac{1}{2} = \frac{2 \times 1 + 1}{2} = \frac{2 + 1}{2} = \frac{3}{2}\right)$

$= \frac{3}{2} \div \frac{1}{5}$kg

$= \frac{3}{2} \times \frac{5}{1} = \frac{3 \times 5}{2 \times 1} = \frac{15}{2} = 7\frac{1}{2}$

Answer: $7\frac{1}{2}$, $\frac{1}{5}$kg boxes can be made with, $\frac{1}{2}$kg of choclate.

Learning Updates

1. (a) $3\frac{3}{5} = \frac{5 \times 3 + 3}{5} = \frac{15 + 3}{5} = \frac{18}{5}$

(b) $6\frac{2}{3} = \frac{3 \times 6 + 2}{3} = \frac{18 + 2}{3} = \frac{20}{3}$

(c) $4\frac{5}{6} = \frac{6 \times 4 + 5}{6} = \frac{24 + 5}{6} = \frac{31}{6}$

2. (a) $\frac{17}{8}$

Denominator → $8\overline{)17}$ ← Whole number

-16

01 ← Numerator

$= 2\frac{1}{8}$

(b) $\frac{23}{6}$

Denominator → 6) 23 ← 3 ← Whole number

− 18

05 ← Numerator

$= 3\frac{5}{6}$

(c) $\frac{15}{7}$

Denominator → 7) 15 ← 2 ← Whole number

− 14

01 ← Numerator

$= 2\frac{1}{7}$

3. (a) $\frac{4}{7} = \frac{4 \times 2}{7 \times 2} = \frac{8}{14}, \frac{4 \times 3}{7 \times 3} = \frac{12}{21}, \frac{4 \times 4}{7 \times 4}$

$= \frac{16}{28}, \frac{4 \times 5}{7 \times 5} = \frac{20}{35}, \frac{4 \times 6}{7 \times 6} = \frac{24}{42}$

(b) $\frac{5}{6} = \frac{5 \times 2}{6 \times 2} = \frac{10}{12}, \frac{5 \times 3}{6 \times 3} = \frac{15}{18}, \frac{5 \times 4}{6 \times 4}$

$= \frac{20}{24}, \frac{5 \times 5}{6 \times 5} = \frac{25}{30}, \frac{5 \times 6}{6 \times 6} = \frac{30}{36}$

(c) $\frac{3}{5} = \frac{3 \times 2}{5 \times 2} = \frac{6}{10}, \frac{3 \times 3}{5 \times 3} = \frac{9}{15}, \frac{3 \times 4}{5 \times 4}$

$= \frac{12}{20}, \frac{3 \times 5}{5 \times 5} = \frac{15}{25}, \frac{3 \times 6}{5 \times 6} = \frac{18}{30}$

4. (a) $\frac{2}{3} = \frac{12}{\boxed{18}}, \frac{2 \times 6}{3 \times 6} = \frac{12}{18}$

(b) $\frac{6}{13} = \frac{\boxed{24}}{52}, \frac{6 \times 4}{13 \times 4} = \frac{24}{52}$

(c) $\frac{11}{27} = \frac{33}{81}$

$\frac{11 \times 3}{27 \times 3} = \frac{33}{81}$

5. (a) $\frac{5}{8}, \frac{15}{24}$

$\frac{5}{8} \times \frac{15}{24}$

$5 \times 24 = 120$

$15 \times 8 = 120$

Since, the products are equal, the fractions $\frac{5}{8}$ and $\frac{15}{24}$ are equilvalent fractions.

(b) $\frac{7}{11}, \frac{28}{44}$

$\frac{7}{11} \times \frac{28}{44}$

$7 \times 44 = 308, 28 \times 11 = 308$

$308 = 30$

Since, the product are equal, the fractions $\frac{7}{11}$ and $\frac{28}{44}$ are equivalent fractions.

(c) $\frac{3}{10}, \frac{12}{50}$

$\frac{3}{10} \times \frac{12}{50}$

$3 \times 50 = 150$

$12 \times 10 = 120$

$150 \neq 120$

Since, the products are not equal, the fraction $\frac{3}{10}$ and $\frac{12}{50}$ are non–equilvalent fractions.

6. (a) $\frac{40}{72}$

$\frac{40 \div 8}{72 \div 8} = \frac{5}{9}$

(b) $\frac{51}{68}$

$\frac{51 \div 17}{68 \div 17} = \frac{3}{4}$

(c) $\frac{35}{63}$

$\frac{35 \div 7}{63 \div 7} = \frac{5}{9}$

7. (a) $\frac{2}{7}, \frac{11}{35}, \frac{9}{14}, \frac{13}{28}$

[LCM of 7, 35, 14 and 28 is 140]

2	7, 35, 14, 28
2	7, 35, 7, 14
5	7, 35, 7, 7
7	7, 7, 7, 7
	1, 1, 1, 1

So, $\frac{2 \times 20}{7 \times 20} = \frac{40}{140}, \frac{11 \times 4}{35 \times 4} = \frac{44}{140},$

$\frac{9 \times 10}{14 \times 10} = \frac{90}{140}, \frac{13 \times 5}{28 \times 5} = \frac{70}{140}$

$\frac{40}{140} < \frac{44}{140} < \frac{70}{140} < \frac{90}{140}$

[40 < 44 < 70 < 90]

Hence, $\frac{2}{7} < \frac{11}{35} < \frac{13}{28} < \frac{9}{14}$

(b) $2\frac{5}{9}, 1\frac{3}{12}, 4\frac{1}{3}, \frac{4}{15}$

$\left(2\frac{5}{9} = \frac{9 \times 2 + 5}{9} = \frac{18 + 5}{9} = \frac{23}{9}\right)$

$\left(1\frac{3}{12} = \frac{12 \times 1 + 3}{12} = \frac{12 + 3}{12} = \frac{15}{12}\right)$

$\left(4\frac{1}{3} = \frac{3 \times 4 + 1}{3} = \frac{12 + 1}{2} = \frac{13}{3}\right)$

LCM of 9, 12, 3 and 15 is 180.

3	3, 9, 12, 15
2	1, 3, 4, 5
3	1, 3, 2, 5
2	1, 1, 2, 5
5	1, 1, 1, 5
	1, 1, 1, 1

LCM = $3 \times 2 \times 3 \times 2 \times 5 = 180$

So, $\frac{23 \times 20}{9 \times 20} = \frac{460}{180}$

$\frac{15 \times 15}{12 \times 15} = \frac{225}{180}, \frac{13 \times 60}{3 \times 60} = \frac{780}{180}, \frac{4 \times 12}{15 \times 12}$

$= \frac{36}{180}$

$\frac{36}{180} < \frac{225}{180} < \frac{460}{180} < \frac{780}{180}$

[As, $36 < 225 < 460 < 780$]

Hence, $\frac{4}{15} > 1\frac{3}{12} < 3\frac{2}{6} < 4\frac{1}{3}$

8. (a) $\frac{3}{6}, \frac{4}{7}, \frac{1}{3}, \frac{12}{14}$

[LCM of 6, 7, 3, and 14 is 42]

2	6, 7, 3, 14
2	3, 7, 3, 7
7	1, 7, 1, 7
	1, 1, 1, 1

So, $\frac{3 \times 7}{6 \times 7} = \frac{21}{42}, \frac{4 \times 6}{7 \times 6} = \frac{24}{42}, \frac{1 \times 14}{3 \times 14}$

$= \frac{14}{42}, \frac{12 \times 3}{14 \times 3} = \frac{36}{42}$

$\frac{36}{42} > \frac{24}{42} > \frac{21}{42} > \frac{14}{42}$

[$36 > 24 > 21 > 14$]

Hence, $\frac{12}{14} > \frac{4}{7} > \frac{3}{6} > \frac{1}{3}$

(b) $6\frac{4}{9}, \frac{17}{3}, 3\frac{4}{9}, \frac{17}{8}$

$\left(6\frac{4}{9} = \frac{9 \times 6 + 4}{9} = \frac{54 + 4}{9} = \frac{58}{9}\right)$

$\left(3\frac{2}{6} = \frac{6 \times 5 + 2}{6} = \frac{18 + 2}{6} = \frac{20}{6}\right)$

LCM of 9, 3, 6 and 18 is 72

2	9, 3, 6, 18
2	9, 3, 3, 9
2	9, 3, 3, 9
3	9, 3, 3, 9
3	3, 1, 1, 3
	1, 1, 1, 1

LCM = $2 \times 2 \times 2 \times 3 \times 3 = 72$

So, $\frac{58 \times 8}{9 \times 8} = \frac{464}{72}, \frac{17 \times 24}{3 \times 24} = \frac{408}{72}, \frac{20 \times 12}{6 \times 12}$

$= \frac{240}{72}, \frac{17 \times 4}{18 \times 4} = \frac{68}{72}$

$\frac{464}{72} > \frac{408}{72} > \frac{240}{72} > \frac{68}{72}$

[$464 > 408 > 240 > 68$]

Hence, $6\frac{4}{9} > \frac{17}{3} > 3\frac{2}{6} > \frac{17}{18}$

9. (a) $2\frac{3}{7} + \frac{9}{4}$

$\left(2\frac{3}{7} = \frac{7 \times 2 + 3}{7} = \frac{14 + 3}{7} = \frac{17}{7}\right)$

$= \frac{17}{7} + \frac{9}{4}$

[LCM of 7 and 4 is 28]

7	7, 4
2	1, 4
2	1, 2
	1, 1

LCM = $7 \times 2 \times 2 = 28$

So, $\frac{17 \times 4}{7 \times 4} = \frac{68}{28}, \frac{9 \times 7}{4 \times 7} = \frac{63}{28}$

$\frac{68}{28} + \frac{63}{28} = \frac{68 + 63}{28} = \frac{131}{28}$

(b) $1\frac{3}{4} + 2\frac{2}{3} + 3\frac{1}{6}$

$1\frac{3}{4} = \frac{4 \times 1 + 3}{4} = \frac{4 + 3}{4} = \frac{7}{4}$

$2\frac{2}{3} = \frac{3 \times 2 + 2}{4} = \frac{6 + 2}{3} = \frac{8}{3}$

$3\frac{1}{6} = \frac{6 \times 3 + 1}{6} = \frac{18 + 1}{6} = \frac{19}{6}$

$\frac{7}{4} + \frac{8}{3} + \frac{19}{6}$ [LCM of 4, 3 and 6 is 12]

$\frac{7 \times 3}{4 \times 3} = \frac{21}{12}, \frac{8 \times 4}{3 \times 4} = \frac{32}{12}, \frac{21 \times 32 + 38}{12}$

$= \frac{91}{12}$

(c) $2\frac{4}{5} + 1\frac{3}{10} + 2\frac{1}{2}$

$2\frac{4}{5} = \frac{5 \times 2 + 4}{5} = \frac{10 + 3}{5} = \frac{14}{5}$

$1\frac{3}{10} = \frac{10 \times 1 + 3}{10} = \frac{10 + 3}{10} = \frac{13}{10}$

$2\frac{1}{2} = \frac{2 \times 2 + 1}{2} = \frac{4 + 1}{2} = \frac{5}{2}$

$\frac{14}{5} + \frac{13}{10} + \frac{5}{2}$ [Lcm of 5, 10 and 2 is 10]

$\frac{14 \times 2}{5 \times 2} = \frac{28}{10}, \frac{13 \times 1}{10 \times 1} = \frac{13}{10}, \frac{5 \times 5}{2 \times 5}$

$= \frac{25}{10}$

$\frac{28}{10} + \frac{13}{10} + \frac{25}{10} = \frac{28 \times 13 + 25}{10} = \frac{66}{10}$

10. (a) $3\frac{3}{4} = \frac{4 \times 3 + 3}{4} + \frac{12 + 3}{4} = \frac{15}{4}$

$\frac{15}{4} - \frac{7}{10}$ [LCM of 4 and 10 is 20]

$\frac{15 \times 5}{4 \times 5} = \frac{75}{20}, \frac{7 \times 2}{10 \times 2} = \frac{14}{20}$

$\frac{75}{20} \div \frac{14}{20} = \frac{75 - 14}{20} = \frac{61}{20}$

(b) $1\frac{3}{4} + \frac{7}{8}$

$\left(1\frac{3}{4} = \frac{4 \times 1 + 3}{4} = \frac{4 + 3}{4} = \frac{7}{4}\right)$

$= \frac{7}{4} + \frac{7}{8}$

[LCM of 4 and 8 is 8]

2	4, 8
2	2, 4
2	1, 2
	1, 1

LCM = $2 \times 2 \times 2 = 8$

So, $\frac{7 \times 2}{4 \times 2} = \frac{14}{8}, \frac{7 \times 1}{8 \times 1} = \frac{7}{8}$

$\frac{14}{8} + \frac{7}{8} = \frac{21}{8}$

(c) $\frac{8}{5} \div \frac{9}{15} = \frac{8}{5} \times \frac{15}{9} = \frac{8 \times \cancel{15}^{3}}{\cancel{5} \times 9} = \frac{24}{9} =$

$\frac{24 \div 3}{9 \div 3} = \frac{8}{3}$

(d) $\frac{\cancel{15}}{\cancel{10}} \times \frac{\cancel{30}}{\cancel{20}} \; \frac{{}^{3}\cancel{15} \times \cancel{30}^{3}}{\cancel{10} \times \cancel{20}_{4}} = \frac{9}{4}$

11. Weight of drum with pulses: $40\frac{1}{6}$kg

$\left(40\frac{1}{6} = \frac{6 \times 40 + 1}{6} = \frac{240 + 1}{6} = \frac{241}{6}\right)$

Weight of empty drum = $13\frac{3}{4}$kg $\left(13\frac{3}{4} = \frac{4 \times 13 + 3}{4} = \frac{52 + 3}{4} = \frac{55}{4}\right)$

Weigth of pulses: Weight of drum with pulses – Weight of empty drum

$= \frac{241}{6} - \frac{55}{4}$

[LCM of 6 and 4 is 12]

2	4, 6
2	2, 3
3	1, 3
	1, 1

LCM = $2 \times 2 \times 3 = 12$

$\frac{241 \times 2}{6 \times 2} = \frac{482}{12}, \frac{55 \times 3}{4 \times 3} = \frac{165}{12}$

$\frac{482}{12} - \frac{165}{12} = \frac{482 - 165}{12} = \frac{317}{12}$

Answer: Weight of Pulses is $\frac{317}{12}$kg.

12. Total distance travelled: $47\frac{1}{2}$km

$\left(47\frac{1}{2} = \frac{47 \times 2 + 1}{2} = \frac{94 + 1}{2} = \frac{95}{2}\right)$

Distance covered by Bus: $29\frac{1}{3}$km

$\left(29\frac{1}{3} = \frac{3 \times 29 + 1}{3} = \frac{87 + 1}{3} = \frac{88}{3}\right)$

Distance covered by Horsecart: $8\frac{5}{6}$km: $\left(8\frac{5}{6}\right.$

$= \left.\frac{6 \times 8 + 5}{6} = \frac{48 + 5}{6} = \frac{53}{6}\right)$

Distance covered on foot: Total distance covered – [Distance covered by Bus + Distance covered by Horesecart]

$= \frac{95}{2} - \left(\frac{88}{3} + \frac{53}{6}\right)$

[LCM of 2, 3 and 6 is 6]

2	2, 3, 6
2	1, 3, 3
	1, 1, 1

So, $\frac{95 \times 3}{2 \times 3} = \frac{285}{6}, \frac{88 \times 2}{3 \times 2} = \frac{176}{6}, \frac{53 \times 1}{6 \times 1}$

$= \frac{53}{6}$

$\frac{285}{6} - \left(\frac{176}{6} + \frac{53}{6}\right)$

$= \frac{285}{6} - \left(\frac{176 + 53}{6}\right) = \frac{285}{6} - \left(\frac{229}{6}\right)$

$\frac{285 - 229}{6} = \frac{56}{6} = \frac{56 \div 2}{6 \div 2} = \frac{28}{3}$

Answer: He travelled $\frac{28}{3}$km by foot.

13. Distance from Rashi's school to home: $15\frac{3}{5}$ km

Distance she travelled = $\frac{2}{3}$ of total disance = $\frac{2}{3}$ of $15\frac{3}{5}$

$\left(15\frac{3}{5} = \frac{15 \times 5 + 3}{5} = \frac{75 + 3}{5} = \frac{78}{5}\right)$

$= \frac{2}{3} \times \frac{78}{5} = \frac{156}{15}$ km

Distance left to travel = Total distance – Distance travelled

$\frac{78}{5} - \frac{156}{15}$

[LCM of 5 and 15 is 15]

3	5, 15
5	5, 5
	1, 1

So, $\frac{78 \times 3}{5 \times 3} = \frac{234}{15}$, $\frac{156 \times 1}{15 \times 1} = \frac{156}{15}$

$\frac{234}{15} - \frac{156}{15} = \frac{234 - 156}{15} = \frac{78}{15}$

Answer: $\frac{78}{15}$ km is left to travel.

Multiple Choice Questions

1. (b) improper

2. (a) proper

3. (c) $\frac{7}{3}$

4. (a) greater

5. (d) 1

6. $\frac{3}{4} \times$ Fraction = 12

Fraction = $\frac{12}{1} \times \frac{4}{3}$

Fraction = $\frac{{}^{4}\cancel{12} \times 4}{1 \times \cancel{3}_{1}}$

Fraction = $\frac{16}{1}$

Answer: (d) $\frac{16}{1}$

7. (a) more

Skills Check

1. $\frac{8}{15} \div \left(\frac{2}{4} + \frac{3}{10}\right)$

LCM of 4 and 10 is 20

2	4, 10
2	2, 5
5	1,5
	1, 1

LCM = 2 × 2 × 5 = 20

So $\frac{2 \times 5}{4 \times 5} = \frac{10}{20}$, $\frac{3 \times 2}{10 \times 2} = \frac{6}{20}$

$\frac{8}{15} \div \left(\frac{10}{20} + \frac{6}{20}\right)$

$\frac{8}{15} \div \left(\frac{10 + 6}{20}\right)$

$\frac{8}{15} \div \frac{16}{20} = \frac{8}{5} \times \frac{20}{16} = \frac{{}^{1}\cancel{8} \times \cancel{20}^{\cancel{10}^{2}}}{{}_{3}\cancel{15} \times \cancel{16}_{\cancel{2}_{1}}} = \frac{2}{3}$

2. $\frac{5}{8} + \left(\frac{3}{4} - \frac{1}{2}\right) \times \frac{4}{5} \div \frac{8}{10}$

[LCM of 8, 4, and 2 is 8]

2	8, 4, 2
2	4, 2, 1
2	2, 1, 1
	1, 1, 1

LCM = 2 × 2 × 2 = 8

So, $\frac{5 \times 1}{8 \times 1} = \frac{5}{8}$, $\frac{3 \times 2}{4 \times 2} = \frac{6}{8}$, $\frac{1 \times 4}{2 \times 4} = \frac{4}{8}$

$\frac{5}{8} + \left(\frac{6}{8} - \frac{4}{8}\right) \times \frac{4}{5} \times \frac{10}{8}$

$\frac{5}{8} + \left(\frac{6 - 4}{8}\right) \times \frac{4}{5} \times \frac{10}{8}$

$\frac{5}{8} + \frac{2}{8} \times \frac{{}^{1}\cancel{4} \times \cancel{10}^{\cancel{2}^{1}}}{{}_{1}\cancel{5} \times \cancel{8}_{\cancel{2}_{1}}}$

$\frac{5 + 2}{8} \times 1$

$\frac{7}{8} \times 1 = \frac{7}{8}$

3. $\left(\frac{1}{3} + \frac{1}{3}\right) \times \frac{9}{16} - \frac{1}{8}$

$\left(\frac{1 + 1}{3}\right) \times \frac{9}{16} - \frac{1}{8}$

$\frac{2}{3} \times \frac{9}{16} - \frac{1}{8}$

$\frac{{}^{1}\cancel{2} \times \cancel{9}^{3}}{{}_{1}\cancel{3} \times \cancel{16}_{8}} - \frac{1}{8}$

$\frac{3}{8} - \frac{1}{8} = \frac{2}{8} = \frac{1}{4}$

4. $\frac{4}{5} \div \left(3\frac{2}{5} - 2\frac{1}{5}\right) + \frac{1}{2}$

$\left(3\frac{2}{5} = \frac{5 \times 3 + 2}{5} = \frac{15 + 2}{5} = \frac{17}{5}\right)$

$\left(2\frac{1}{5} = \frac{5 \times 2 + 1}{5} = \frac{10 + 1}{5} = \frac{11}{5}\right)$

$\frac{4}{5} \div \left(\frac{7}{5} - \frac{11}{5}\right) + \frac{1}{2}$

$\frac{4}{5} \div \left(\frac{17 - 11}{5}\right) + \frac{1}{2}$

$\frac{4}{5} \div \frac{6}{5} + \frac{1}{2}$

$\frac{4}{5} \times \frac{5}{6} + \frac{1}{2} = \frac{{}^{2}\cancel{4} \times \cancel{5}^{1}}{{}_{1}\cancel{5} \times \cancel{6}_{3}} + \frac{1}{2}$

$\frac{2}{3} + \frac{1}{2}$ [LCM of 2 and 3 is 6]

2	2, 3
3	1, 3
	1, 1

LCM = $2 \times 3 = 6$

So, $\frac{2}{3} \times \frac{2}{2} = \frac{4}{6}$, $\frac{1 \times 3}{2 \times 3} = \frac{3}{6}$

$\frac{4}{6} + \frac{3}{6} = \frac{4 + 3}{6} = \frac{7}{6}$

6 Decimals

Exercise 6.1

1. Fraction = $\frac{\text{Shaded parts}}{\text{Total parts}}$

(a) $\frac{3}{10} = 0.3$

(b) $\frac{7}{10} = 0.7$

(c) $\frac{35}{100} = 0.35$

2. (a) 0.24 = Zero point two four

(b) 0.09 = Zero point zero nine

(c) 0.576 = Zero point five seven six

(d) 0.006 = Zero point zero zero six

(e) 0.039 = Zero point zero three nine

(f) 0.68 = Zero point six eight

3. (a) 0.7 (b) 1.8

(c) 27.2 (d) 0.03

(d) 1.19 (f) 12.36

(g) 0.008 (h) 0.368

4. (a) $\frac{705}{100}$ (b) $\frac{9}{10}$

(c) $\frac{1}{1000}$ (d) $\frac{4545}{100}$

(e) $\frac{6}{100}$ (f) $\frac{13301}{1000}$

(g) $\frac{125}{1000}$ (h) $\frac{9}{100}$

5. (a) $1\frac{5}{10} = \frac{10 \times 1 + 5}{10} = \frac{10 + 5}{10} = \frac{15}{10} = 1.5$

(b) $2\frac{4}{10} = \frac{10 \times 2 + 4}{10} = \frac{20 + 4}{10} = \frac{24}{10} = 2.4$

(c) $3\frac{7}{100} = \frac{100 \times 3 + 7}{100} = \frac{300 + 7}{100} = \frac{307}{100} = 3.07$

(d) $2\frac{1}{1000} = \frac{1000 \times 2 + 1}{1000} = \frac{2000 + 1}{1000} = 2.001$

Exercise 6.2

1.

	Number	Hundreads (100)	Tens (10)	Ones (1)	Decimal point
(a)	0.009			0	.
(b)	5.26			5	.
(c)	124.264	1	2	4	.

	Number	Tents ($\frac{1}{10}$)	Hundreds ($\frac{1}{100}$)	Thousands ($\frac{1}{1000}$)
(a)	0.009	0	0	9
(b)	5.26	2	6	
(c)	124.264	2	6	4

2.

	Decimal numbers	Method I	Method II
(a)	237.058	Two hundred thirty seven point zero five eight	Two hundred thirty seven and fifty eight thou-sandths
(b)	660.419	Six hundred sixty point four one nine	Six hundred sixty and four hundred nine-teen thousandths
(c)	29.004	Twenty nine point zero zero four	Two nine and four thousandths

3.

	Decimal numbers	Method I	Method II
(a)	16.3	1 ten + 6 ones + 3 tenths	10 + 6 + 0.3
(b)	6.24	6 ones + 2 tenths + 4 hundreths	6 + 0.2 + 0.04
(c)	21.459	2 tens + 1ones + 4 tenths + 5 hundreths + 9 thousandths	20 + 1 + 0.4 + 0.05 + 0.009
(d)	126.47	1 hundred + 2 tens + 6 ones + 4 tenths + 7 hundreths	100 + 20 + 6 + 0.4 + 0.07
(e)	0.93	9 tenths + 3 hundreths	0 + 0.9 + 0.03

	Decimal numbers	Method III
(a)	16.3	$10 + 6 + \frac{3}{10}$
(b)	6.24	$6 + \frac{2}{10} + \frac{4}{100}$
(c)	21.459	$20 + 1 + \frac{4}{10} + \frac{5}{100} + \frac{9}{1000}$
(d)	126.47	$100 + 20 + 6 + \frac{4}{10} + \frac{7}{100}$
(e)	0.93	$\left(\frac{9}{10} + \frac{3}{100}\right)$

4. (a) $20 + \frac{1}{10} + \frac{2}{100} + \frac{3}{1000} = 20 + 0.1 + 0.02 + 0.003 = 20.123$

(b) $3000 + 9 + \frac{16}{100} = 3009 + 0.16 = 3009.16$

(c) $60 + 4 + \frac{1}{1000} = 64 + 0.001 = 64.001$

(d) 4 hundreds + 6 ones + 6 tenths + 3 hundreths = 400 + 6 + 0.6 + 0.03 = 406 + 0.63 + = 406.63

(e) 5 + 0.3 + 0.008 = 5.308

(f) $(6 \times 1000) + (8 \times 10) + \left(5 \times \frac{1}{10}\right) + \left(3 \times \frac{9}{1000}\right)$

$= 6000 + 80 + \frac{5}{10} + \frac{3}{1000}$

$= 6080 + 0.5 + 0.003$

$= 6080.503$

Exercise 6.3

1. Like fractions

(a) 0.49, 0.09, 3.06, 15.68 [All decimal numbers have same number of decimal places]

(b) 0.656, 2.001, 15.905, 215.812 [All decimal number have same number of decimal places]

2. Unlike fractions

(a) 0.32, 0.456, 17.4, 617.561 [All decimal numbers have different number of decimals places]

(c) 0.56, 0.605, 12.1, 270.01 [All decimal numbers have different number of decimals places]

3. (a) 0.30, 0.300

(b) 2.50, 2.500

(c)6.400, 6.4000

(d) 9.7000, 9.70000

4. (a) 2.3, 6.87

Adding 1 or more zero to exteme right equal to have number of decimal places.

$2.3 \rightarrow \underline{2.30}$

$6.87 \rightarrow 6.87$

(b) 2.63, 43.6, 1.264

Adding 1 or more zero to extreme right to have equal number of decimal places.

$2.63 \rightarrow 2.63\underline{0}$

$43.6 \rightarrow 43.6\underline{00}$

$1.264 \rightarrow 1.264$

(c) 5.1, 5.01, 5.001

Adding 1 or more zero to extreme right to have equal number of decimal places.

5.1 → 5.1$\underline{00}$

5.01 → 5.01$\underline{0}$

5.001 → 5.001

(d) 40.4, 48.26, 100.143

Adding 1 or more zero to extreme right to have equal number of decimal places.

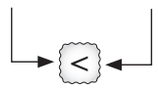
40.4 → 40.4$\underline{00}$

48.26 → 48.26$\underline{0}$

100.143 → 100.143

Exercise 6.4

1. (a) 2.$\underline{7}$10 2.$\underline{8}$02

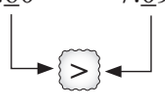


(b) 7.6; 7.09

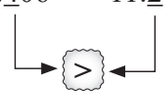
Converting into like fractions

7.6 → 7.60, 7.09 → 7.09

7.$\underline{6}$0 7.$\underline{0}$9



(c) 11.$\underline{4}$06 11.$\underline{2}$78



(d) 0.8$\underline{5}$6 0.8$\underline{0}$9

(e) 0.126, 1.34

Converting into like fractions

0.126 → 0.126

1.34 → 1.34$\underline{0}$

$\underline{0}$.126 $\underline{1}$.340

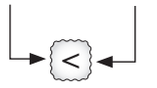
(f) 27.068, 27.9

Converting into fractions

27.068 → 27.068

27.9 → 27.9$\underline{00}$

27.$\underline{0}$68 22.$\underline{9}$00



2. (a) 0.035, 0.123, 0.608, 1.708

Greatest number = 1.708 [As 1 is greates digit at ones place]

(b) 123.5, 1.555, 60.99, 350.2

Converting into like fraction: 123.500, 1.555, 60.990, 350.200

Greatest number: 350.200 [As 3 is the greatest digit at hundreds place]

3. (a) 112.47, 0.8, 202.39, 500.136

Converting into like fraction: 112.470, 0.800, 202.390, 500.136

Smallest number: 0.800 (As 0 is the smallest whole]

(b) 0.62, 25.131, 368.147, 199.09

Converting into like fractions: 0.620, 25.131, 368.147, 199.090

Smallest fraction: 0.620 [0 is the smallest whole]

4. (a) 5.03, 5.030, 5.31, 53.5

Converting into like fractions: 5.03, 5.030, 5.310, 53.500

Ascending: 5.030 < 5.030 < 5.310 < 53.500 or 5.03 < 5.030 < 5.31 < 53.5 or 5.030 < 5.31 < 53.5 [As 5.030 is equilvalent to 5.03]

(b) 0.7, 0.77, 70,0.777, 77

Converting into like decimals = 0.700, 0.770, 70.000, 0.777, 77.000

Ascending order: 0.700 < 0.770 < 0.777 < 70.000 < 77.000

or0.7 < 0.77 < 0.777 < 70 < 77

5. (a) 10.01, 10.32, 10.02, 10.045

Converting into like fractions: 10.010, 10.032, 10.032, 10.045

10.045 > 10.032 > 10.020 > 10.010

or 10.045 > 10.032 > 10.02 > 10.01

(b) 2.003, 20.03, 200.03, 0.203

Converting into like fractions: 2.003, 20.030, 200.030, 0.203

Descending order: 200.030 > 20.030 > 2.003 > 0.203

200.03 > 20.03 > 2.003 > 0.203

Exercise 6.5

1. (a) Converting into like fraction = 6.9 + 8.9 + 18.8

	②	②		
		6	.	9
		8	.	9
+	1	8	.	8
	3	4	.	6

(b) Converting into like fraction = 14.75 + 10.25 + 12.60

		①		①	
	1	4	.	7	5
	1	0	.	2	5
+	1	2	.	6	0
	3	7	.	6	0

(c) Converting into like fractions = 18.7 + 9.00 + 7.16

	②				
	1	8	.	7	0
		9	.	0	0
+		7	.	1	6
	3	4	.	8	6

= 34.86

(d) 28.75 + 19.32 + 4.652

Converting into like fractions = 28.750 + 19.320 + 4.652

	②	①		①	
	2	8	.	7	5	0
	1	9	.	3	2	0
+		4	.	6	5	2
	5	2	.	7	2	2

(e) 82.25 + 16.95 + 3.752 + 4.001

Converting into like fractions = 82.250 + 16.950 + 3.752 + 4.001

	①	①		①		
	8	2	.	2	5	0
	1	6	.	9	5	0
		3		7	5	2
+		4	.	0	0	1
1	0	6	.	9	5	3

(f) 3.15.6 + 0.325 + 41.9 + 7.29

Converting into like fractions = 315.600 + 0.325 + 41.900 + 7.290

		①	②		①		
	3	1	5	.	6	0	0
			0	.	3	2	5
		4	1		9	0	0
+			7	.	2	9	0
	3	6	5	.	1	1	5

(g) 7.5 + 12.865 + 0.782 + 95.905

Converting into like fraction = 7.500 + 12.865 + 0.782 + 95.905

	①	③		①	①		
		7	.	5	0	0	
	1	2	.	8	6	5	
		0		7	8	2	
+	9	5	.	9	0	5	
1	1	7	.	0	5	2	

(h) 48.609 + 0.999 + 2.99

Converting into like fractions = 8.609 + 0.999 + 2.990

	①	②		①	①
	4	8	.	6	0	9
		0	.	9	9	9
+		2	.	9	9	0
	5	2	.	5	9	8

2. (a) ₹25.9 + ₹16.07 = ₹41.97

Converting into like fractions = ₹25.9 + ₹16.07

₹		p	
	2	5	9	0
–	1	6	0	7
	4	1	9	7

(b) 14.87m + 21.25m = 36.12m

m		cm	
		①	①	
	1	4	8	7
+	2	1	2	5
	3	6	1	2

(c) 7.076*l* + 7.5*l* = 14.576*l*

Converting into like fraction = 7.076*l* + 7.500*l*

l		m*l*		
	7	0	7	6
+	7	5	0	0
1	4	5	7	6

(d) 25.25kg + 0.605kg = 25.855kg

Converting into like fraction = 25.250kg + 0.605kg

kg		g		
	2	5	2	5	0
+		0	6	0	5
	2	5	8	5	5

3. (a) 3.456 – 2.2

Converting into like fraction = 3.456 – 2.200

	3	.	4	5	6
+	2	.	2	0	0
	1	.	2	5	6

(b) 20.876 – 1.979

		⑨		⑰		
	①	~~10~~		~~7~~	⑯	⑯
	~~2~~	~~0~~	.	~~8~~	~~7~~	~~6~~
–		1	.	9	7	9
	1	8	.	8	9	7

(c) 15.2 – 2.9567

Converting into like fractions = 15.2000 – 2.9567

			⑪	⑨	⑨	
		④		~~1~~	~~10~~	~~10~~	⑩
	1	~~5~~	.	~~2~~	~~0~~	~~0~~	~~0~~
–		2	.	9	5	6	7
	1	2	.	2	4	3	3

(d) 345.607 – 235.992

Converting into like fractions = 345.607 – 235.992

			⑭		⑮		
		③	~~4~~		~~5~~	⑩	
	3	~~4~~	5	.	~~6~~	~~0~~	7
–	2	3	5	.	9	9	2
	1	0	9	.	6	1	5

(e) 0.9 – 0.279

Converting into like fractions = 0.900 – 0.279

			⑨	
		8	~~10~~	⑩
	0	.	~~9~~	~~0~~	~~0~~
–	0	.	2	7	9
	0	.	6	2	1

4. (a) 5.38l – 5.19l

		l	
		②	⑱
	5	.	~~3~~ ~~8~~
–	5	.	1 9
	0		1 9

(b) 20.654kg – 16.59kg

20.654kg – 16.59kg = 4.064kg

= 20.654kg – 16.590kg

		kg			
		①	⑩	⑤	⑮
		~~2~~	~~0~~ .	~~6~~	~~5~~ 4
–	1	6 .	5	9	0
	0	4 .	0	6	4

(c) 19.325km – 0.273km

19.325km – 19.052km

		km			
			②	⑫	
	1	9 .	~~3~~	~~2~~	5
–		0 .	2	7	3
	1	9	0	5	2

(d) 536.275kg – 364.20kg

= 172.075kg

		km				
		④	⑬			
		~~5~~	~~3~~	6 .	2	7 5
–	3	6	4 .	2	0	0
	1	7	2 .	0	7	5

(e) ₹25.54 – ₹0.04

= ₹25.50

		₹		
	2	5 .	5	4
–		0 .	0	4
	2	5 .	5	0

(f) 0.695km – 0.199km

= ₹0.496km

		km			
			⑱		
			②	~~8~~	⑮
	0	.	~~6~~	~~9~~	~~5~~
–	0	.	1	9	9
	0	.	4	9	6

5. (a) 16.85 – [8.03 + 8.07]

= 00.42

			①	
		8	. 3	6
+		8	. 0	7
	1	6	. 4	3

	1	6	. 8	5
–	1	6	. 4	3
	0	0	. 4	2

(b) [68.01 + 6.9] – [68.01 – 6.9]

Converting into like fractions

	①			
	6	8	. 0	1
+		6	. 9	0
	7	4	. 9	1

		⑦		⑩
	6	~~8~~	.	~~0~~ 1
–		6	.	9 0
	6	1	.	1 1

	7	4	. 9	1
–	6	1	. 1	1
	1	3	. 8	0

= [68.01 + 6.90] – [68.01 – 6.90]

= 74.91 – 61.11

= 13.80

(c) Cost of icecream: ₹31.75

Cost of Soap: ₹41.25

Cost of shoepolish: ₹52.00

Total money spent by Ajay: Cost of cream + Cost of shop + Cost of shoe polish

₹				
		①	①	
	3	1	. 7	5
	4	1	. 2	5
–	5	2	. 0	0
1	2	5	. 0	0

= ₹31.75 + ₹41.25 + ₹52.00

= ₹125.00

Money given to shopkeeper = ₹200

Money he will get back = Money given to the shopkeeper – Money spent

₹			
		⑨	
	①	~~1~~~~0~~	⑩
	~~2~~	~~0~~	~~0~~
–	1	2	5
	0	7	5

= ₹200 – ₹125

= ₹75

Answer: Ajay will get back ₹75.

(d) Length of cloth: 78.66m

Length of cutted piece: 15.76

Length of cloth left: Length of cloth – Length of cutted piece

m				
		⑦	⑯	
	7	~~8~~	. ~~6~~	6
–	1	5	. 7	6
	6	2	. 9	0

= 78.66m – 15.76m

= 62.90m

Answer: 62.90m in the length of left cloth.

(e) 12.67 – 2.964

Converting into like fraction

		⑪				
	⓪	~~1~~		⑯	⑥	⑩
	~~1~~	~~2~~	.	~~6~~	~~7~~	~~0~~
–		2	.	9	6	4
	0	9	.	7	0	6

Answer: 9.706 should added to 2.964 to get 12.670.

(f) Total weight of three boys: 99.94kg

Weight of first boy: 35.82kg

Weight of second boy: 41.03kg

Weight of third boy: Weight of three boys – [Weight of first boy + Weight of second boy]

kg				
	3	5	. 8	2
+	4	1	. 0	3
	7	6	. 8	5

kg				
			⑧	⑭
	9	9	. ~~9~~	~~4~~
–	7	6	. 8	5
	2	3	. 0	9

= 99.94kg – [35.82 + 41.03kg]

= 99.94kg – [76.85kg]

= 23.09kg

Answer: Weight of third boy is 23.09kg

Exercise 6.6

1. (a) 0.6 × 6.0 = 6 [When we multiply a number by 10, the decimal point in the multiplicand move to the right by ones place]

(b) 9.7 × 10 = 97.0 = 97 [When we multiply a number by 10, the decimal point in the multiplicand move to the right by one place]

(c) 86.05 × 10 = 860.5

(d) 6.567 × 10 = 65.67

(e) 0.45 × 100 = 45.7 [When we multiply a number by 100 the decimal point in the the multiplicand more to the right by two places]

(f) 9.005 × 100 = 900.5 [When we multiply a number by 100 the decimal point in the the multipiand move to the right by two places]

(g) 5.931 × 100 = 593.1 [When we multiply a number by 100 the decimal point in the the multiplicand move to the right by two places]

(h) 27.006 × 1000 = 27006 [When we multiply a number by 100 the decimal point in the multiplicand move to the right by three places

(i) 0.546 × 100 = 546 [When we multiply a number by 100 the decimal point in the the multiplicand move to the right by two places]

2. (a) 86.0 × 7

86.06 × 7 = 602.42 [Two decimal places]

		(4)		(4)	
		8	6	0	6
×					7
	6	0	2	4	2

(b) 66.66 × 17

66.66 × 17 = 1132.22

[Two decimal places]

		(4)	(4)	(4)	
		6	6	6	6
×				1	7
	(1)	(1)	(1)		
	4	6	6	6	2
+	6	6	6	6	×
1	1	3	3	2	2

(c) 0.687 × 15 = 10.305

		(3)	(4)	(3)	
		0	. 6	8	7
×				1	5
	(1)	(1)	(1)		
		3	4	3	5
+	0	6	8	7	×
	1	0	3	0	5

(d) 354.6 × 29 = 10283.4

			(1)		(1)	
			(4)	(4)	(5)	
			3	5	4 . 6	
×					2	9
			(1)			
		3	1	9	1	4
+		7	0	9	2	×
	1	0	2	8	3	4

(e) 23.645 × 66

			(3)	(5)	(4)	(4)	
			(3)	(5)	(4)	(4)	
			2	3 . 6	4	5	
×					9	9	
		(1)					
		2	1	2	8	0	5
+	2	1	2	8	0	5	×
	2	3 .	4	0	8	5	5

(f) 32.65 × 138

32.65 × 138 = 4505.70

[2 decimal places]

$$\begin{array}{r} \overset{1}{1}\overset{1}{1} \\ \overset{2}{2}\overset{5}{5}\overset{4}{4} \\ 32.65 \\ \times138 \\ \hline \overset{1}{1}\overset{2}{2}\overset{1}{1} \\ 2612 \\ 9795\times \\ +3265\times\times \\ \hline 4505700 \end{array}$$

(g) 96.72 × 162

96.72 × 162 = 15668.64

[2 decimal places]

$$\begin{array}{r} \overset{4}{4}\overset{4}{4}\overset{1}{1} \\ \overset{1}{1}\overset{1}{1} \\ 96.72 \\ \times162 \\ \hline \overset{1}{1}\overset{1}{1} \\ 19344 \\ 5803\times \\ +9672\times\times \\ \hline 15668644 \end{array}$$

(h) 0.465 × 118 = 54.870

$$\begin{array}{r} \overset{5}{5}\overset{4}{4} \\ 0.465 \\ \times118 \\ \hline \overset{1}{1}\overset{1}{1} \\ 3720 \\ 465\times \\ +465\times\times \\ \hline 54870 \end{array}$$

3. (a) 18.6 × 1.3

$$\begin{array}{r} \overset{3}{3}\overset{4}{4}\overset{3}{3} \\ 18.6 \\ \times1.3 \\ \hline \overset{1}{1}\overset{1}{1} \\ 558 \\ +186\times \\ \hline 2418 \end{array}$$

18.6 × 1.3 = 24.18

[1 decimal place + 1 decimal place = 2 decimal places]

(b) 3.5 × 0.4

$$\begin{array}{r} \overset{2}{2} \\ 35 \\ \times04 \\ \hline 140 \\ +00\times \\ \hline 140 \end{array}$$

3.5 × 0.4 = 1.40

[1 decimal place + 1 decimal palce = 2 decimal places]

(c) 8.6 × 1.6 = 13.76

[1 decimal place + 1 decimal place]

		③		
		8	.	6
×		1	.	6
	5	1	6	
+	8	6	×	
1	3	7	6	

(d) 200.5 × 2.5

			①		
			②		
	2	0	0	.	5
×			2	.	5
1	0	0	2	5	
+ 4	0	1	0	×	
5	0	1	2	5	

200.5 × 5.5 = 501.25

[1 decimal place + 1 decimal palce = 2 decimal places]

(e) 420.06 × 0.03

					①		
			4	2	0	0	6
×					0	0	3
		1	2	6	0	1	8
		0	0	0	0	0	×
+	0	0	0	0	0	×	×
	0	1	2	6	0	1	8

420.06 × 0.03

= 12.6018

[4 decimal places] 2 decimal places + 2 decimal places

(f) 10.081 × 1.2

					①	
	1	0	.	0	8	1
×					1	. 2
	2	0	1	6	2	
+ 1	0	0	8	0	×	
1	2	0	9	7	2	

10.081 × 1.2

= 12.0972

[3 decimal place + 1 decimal place = 4 decimal places]

(g) 1.6 × 0.15

		③		
		1	.	6
×	0	1	5	
	①			
		8	0	
	1	6	×	
+ 0	0	×	×	
0	2	4	0	

1.6 × 1.5 = 0.240

[2 decimal places + 1 decimal place = 3 decimal places]

(h) 0.20 × 0.05

		①		
		0	. 2	0
×		0	. 0	5
		1	0	0
	0	0	0	×
+ 0	0	0	×	×
0	0	1	0	0

0.20 × 0.05 = 0.0100

[2 decimal places + 2 decimal places = 4 decimal places]

(i) 0.182 × 0.62

			(4)	(1)		
			(1)			
		0	.	1	8	2
×				0	.	6	2
			(1)				
			0	3	6	4
		1	0	9	2	×
+	0	0	0	0	×	×
	0	1	1	2	8	4

0.182 × 0.62 = 0.11284

[3 decimal places + 2 decimal places = 5 decimal places]

4. (a) (i) Number of registers: 3

Cost of register: ₹35.50

Cost of registers: Cost of 1 register × Number of register

		₹			
		(1)	(1)		
		3	5	5	0
×					3
	1	0	6	5	0

35.50 × 3 = 106.50

[2 decimal places]

= ₹35.50 × 3

= ₹106.50

(ii) Number of water bottles: 4

Cost of 1 water bottle = ₹218.25

Money paid for water bottles: Number of water bottle × Cost of 1 bottle

		₹				
		(3)	(1)	(2)		
	2	1	8	.	2	5
×						4
	8	7	3	.	0	0

= 218.25 × 4 = 873.00

[2 decimal places]

(b) Number of balls: 10

Weight of 1 ball: 306.8g

Wegiht of 10 balls: Number of balls × Wegiht of 1 ball

= 10 × 306.8 [When we multiply a number by 10, the decimal point in the multipliand and move to the right by ones place]

= 3068

Answer: 10 balls will weight 30680g

(c) Cost of ribbon per metre: ₹11.50

Length of ribbon bougth by Rashi: 16.25m

Money paid for Ribbon: Cost of ribbon per metre × Length of ribbon

= ₹11.50 × 16.25m

[2 decimal places + 2 decimal places = 4 decimal places]

				(3)			
				(1)			
				(2)			
			1	1	.	5	0
×				1	6	.	2	5
		(1)					
				5	7	5	0
			2	3	0	0	×
		6	9	0	0	×	×
+	1	1	5	0	×	×	×
	1	8	6	8	7	5	0

Answer: Rashi paid ₹186.8750 for Ribbon.

Exercise 6.7

1. (a) 53.6 ÷ 10 = 5.36 = [When we divide a decimal number by 10, the decimal points shifts to the left by one place]

(b) 6.65 ÷ 10 = 0.665 ÷ 10 = 0.665 [When we divide a decimal number by 10, the decimal points shifts to the left by one place]

(c) $0.56 \div 10 = 00.56 \div 10 = 0.056$ [When we divide a decimal number by 10, the decimal points shifts to the left by one places]

(d) $354.5 \div 100 = 3.545$ [When we divide a decimal number by 100, the decimal points shifts to the left by two place]

(e) $0.5 \div 100 = 000.5 \div 100 = 0.005$ [When we divide a decimal number by 100, the decimal points shifts to the left by two places]

(f) $235.4 \div 100 = 2.354$ [When we divide a decimal number by 100, the decimal points shifts to the left by two places]

(g) $364.0 \div 1000 = 03640 \div 1000 \div 0.364$ [When we divide a decimal number by 1000, the decimal points shifts to the left by three places]

(h) $87.0 \div 1000 = 0087.00 \div 1000 = 0.087$ [When we divide a decimal number by 1000, the decimal points shifts to the left by three places]

(i) $0.5 \div 1000 = 000.5 \div 1000 = 0.005$ [When we divide a decimal number by 1000, the decimal points shifts to the left by three places]

2. (a) $3.752 \div 4 = 0.938$

```
   0.938
4 ) 3.752
  - 36
    15
  - 12
    32
  - 32
     0
```

(b) $0.985 \div 5 = 0.197$

```
   0.197
5 ) 0.985
  - 5
    48
  - 45
    35
  - 35
     0
```

(c) $3511.20 \div 37 = 94.89$

```
    94.89
37 ) 3511.20
  - 333
    181
  - 148
     320
   - 296
      350
    - 333
       14
```

(d) $426.448 \div 16 = 26.653$

```
    26.653
16 ) 426.448
   - 32
     106
   - 96
      104
    - 96
       84
     - 80
        48
      - 48
         0
```

(e) $37.6 \div 20 = 1.8$

```
    1.88
20 ) 37.6
   - 20
     176
   - 160
      16
      16
       0
```

(f) $70.53 \div 32 = 2.20$

```
    0.20
32 ) 70.53
   - 64
     65
   - 64
      13
```

(g) 15.606 ÷ 34

$$\begin{array}{r} 0.459 \\ 34\overline{)15.606} \\ -\ 136 \\ \hline 200 \\ -\ 170 \\ \hline 306 \\ -\ 306 \\ \hline 0 \end{array}$$

3. (a) Weight of potaoes: 209.7kg

Number of sacks: 9

Weight of each sack: Total weight ÷ Number of sacks

= 209.7kg ÷ 9

= 23.3kg

$$\begin{array}{r} 23.3 \\ 9\overline{)209.7} \\ -\ 18 \\ \hline 29 \\ -\ 27 \\ \hline 27 \\ -\ 27 \\ \hline 0 \end{array}$$

Answer: Weight of each sack is 23.3kg

(b) Length of rope: 22.48m

Number of parts rope is divided: 04

Length of each part: Length of rope ÷ Number of parts

= 22.48m ÷ 4

= 5.62m

$$\begin{array}{r} 5.62 \\ 4\overline{)22.48} \\ -\ 20 \\ \hline 24 \\ -\ 24 \\ \hline 08 \\ -\ 8 \\ \hline 0 \end{array}$$

Answer: Length of each part is 5.62m

(c) Quantiy of Juice: 2.16*l*

Number of kids juice is divided: 04

Quantity of Juice each child got: Quantity of Juice ÷ Number of kids

= 2.16*l* ÷ 4

= 0.54*l*

$$\begin{array}{r} 0.54 \\ 4\overline{)2.16} \\ -\ 20 \\ \hline 16 \\ -\ 16 \\ \hline 0 \end{array}$$

Answer: Each child got 0.54*l* of Juice.

Learning Updates

1.

	Numbers	Decimal form	Fraction form
(a)	6.538	6 + 0.5 + 0.03 + 0.008	$6+\frac{5}{10}+\frac{3}{100}+\frac{8}{1000}$
(b)	975.66	900 + 70 + 5 + 0.6 + 0.06	$900+70+5+\frac{6}{10}+\frac{6}{100}$
(c)	58.027	50 + 8 + 0.02 + 0.007	$50+8+\frac{2}{100}+\frac{7}{1000}$

2. (a) $8\underline{7}.9 \quad 8\underline{6}.9$

$8\underline{7}.9 > 8\underline{6}.9$

(b) $5.\underline{0}7 \quad 5.\underline{5}0$

$5.\underline{0}7 < 5.\underline{5}0$

(c) $9.\underline{3}2 \quad 9.\underline{2}3$

$9.\underline{3}2 > 9.\underline{2}3$

(d) $4\underline{0}.94 \quad 4\underline{4}.09$

$4\underline{0}.94 < 4\underline{4}.09$

3. (a) 8.23, 8.023, 8.32, 8.203, 8.302, 8.032

Converting into like fractions: 8.230, 8.023, 8.320, 8.203, 8.302, 8.032

8.023 < 8.032 < 8.203 < 8.230 < 8.302 < 8.320

or 8.023 < 8.032 < 8.203 < 8.23 < 8.302 < 8.32

(b) 77.09, 70.99, 77.9, 79.77, 77.99, 79.07

Converting into like fractons: 77.09, 70.99, 77.90, 79.77, 77.99, 79.07

$70.99 < 77.09 < 77.90 < 77.99 < 79.07 < 79.77$

or $70.99 < 77.09 < 77.9 < 77.99 < 79.07 < 79.77$

4. (a) 9 hundreths

(b) 3

(c) 1 decimal place + 3 decimal places = 4 decimal places

(d) $1.93 = 1\frac{93}{100}$

5. (a) True

(b) False as there is 1 decimal place

(c) False

(d) True, as they have equal decimal places.

6. (a) 10

(b) 1000

(c) 100

(d) 100

7. (a) 100

(b) 1000

(c) 513.6

(d) 0.000101

8. (a) 0.2×0.3

		0	.	2
×		0	.	3
			0	6
+	0	0	×	
	0	0	6	

$0.2 \times 0.3 = 0.06$

[1 decimal place + 1 decimal place = 2 decimal places]

(b) 0.4×0.5

		②		
		0	.	4
×		0	.	3
			2	0
+	0	0	×	
	0	2	0	

$0.4 \times 0.5 = 0.20$

[1 decimal place + 1 decimal places = 2 decimal places]

(c) 0.09×0.08

				③	
			0	0	9
×			0	0	8
			0	7	2
		0	0	0	×
+	0	0	0	×	×
	0	0	0	7	2

$0.09 \times 0.08 = 0.0072$

[2 decimal places + 2 decimal places = 4 decimal places]

(d) 0.002×0.2

		0	0	0	2
×				0	2
		0	0	0	4
+	0	0	0	0	×
	0	0	0	0	4

$0.002 \times 0.2 = 0.0004$

[3 decimal places + 1 decimal place = 4 decimal places]

9. (a) 0.288 ÷ 2 = 0.144

```
      0.144
   ┌──────
 2 ) 0.288
     − 2
     ---
       08
     − 8
     ---
       08
     − 8
     ---
       0
```

(b) 5.94 ÷ 3 = 1.98

```
      1.98
   ┌──────
 3 ) 5.94
     − 3
     ---
      29
     − 27
     ----
      24
     − 24
     ----
      0
```

(c) 13.03 ÷ 25 = 0.5212

```
        0.5212
     ┌────────
  25 ) 13.03
       − 125
       -----
         53
       − 50
       ----
          30
        − 25
        ----
           50
         − 50
         ----
            0
```

(d) 6819.8 ÷ 43 = 158.6

```
        158.6
     ┌──────
  43 ) 6819.8
       − 43
       ----
        251
      − 215
      -----
        369
      − 344
      -----
         258
       − 258
       -----
          0
```

10 (a) Distance walked in morning: 2.035km

Distance walked in evening: 1.007km

Total distance covered: Distance covered in morning + Distance covered in evening

= 2.035km + 1.007km

= 3.042km

Answer: Rohyesh total walked 3.042km.

km				
		②		
	2	.	0	3	5
+	1	.	0	0	7
	3	.	0	4	2

(b) Length of cloth: 20.05m

Length of cutted cloth: 4.50m

Length of cloth left: Length of cloth - Length of cutted cloth

m				
		⑨		
	①	~~1~~0	⑩	
	~~2~~	~~0~~	.	~~0~~	5
−		4	.	5	0
	1	5	.	5	5

= 20.05m - 4.50m

= 15.55m

Answer: 15.55m of cloth is left.

(c) Amount of pulses family eats every day: 1.3kg

Number of days in week: 7

Amount of pulses family eats in week: Pulses in a day × Number of days in a week

= 1.3kg × 7

= 9.1kg [1 Decimal place]

```
    1 . 3
  ×     7
  -------
    9   1
```

Answer: The family eats 9.1kg in a week.

(d) Number of water bottles: 8

Total capacity of water bottles: 9.6*l*

Capacity of 1 water bottle: Total capacity ÷ Number of water bottles

$$\begin{array}{r} 1.2 \\ 8\overline{)\,9.6} \\ -\,8\downarrow \\ \hline 16 \\ -\,16 \\ \hline 0 \end{array}$$

= 9.6*l* ÷ 8

= 1.2*l*

Answer: Capacity of 1 water bottle is 1.2*l*

Multiple Choice Questions

1. 60 + 6 + $\frac{3}{10}$ + $\frac{2}{1000}$ = 60 + 6 + 0.3 + 0.002
= 66.302 (d) 66.302

2. 1 paise = ₹$\frac{1}{100}$

825 paise = ₹$\frac{825}{100}$

= ₹8.25

(a) 8.25

3. 28 ÷ 1000 = 0.028 [When we divide a decimal number by 1000, the decimal points shifts to the left by three place]

(a) 0.028

4. (c) 8 hundreths

5. 462.5 [When we divide a decimal number by 10, the decimal points shifts to the left by one place]

(b) 462.5

6. 5.46 × 10 = 546 ÷ 6

54.6 = 54.6

(a) 10

Skills Check

(a) 2.56 + 4.07 – 3.590 = 3.040

Converting into like fractions: 2.560 + 4.070 – 3.590

$$\begin{array}{r} \textcircled{1} \\ 2.560 \\ +\,4.070 \\ \hline 6.630 \end{array} \rightarrow \begin{array}{r} \textcircled{5}\ \textcircled{13} \\ 6.\cancel{6}\,\cancel{3}\,0 \\ -\,3.590 \\ \hline 3.040 \end{array}$$

(b) 72.36 - 5.07 + 21.109 = 88.399

Converting into like fractions: 72.360 - 5.070 + 21.109

$$\begin{array}{r} \textcircled{6}\ \textcircled{12}\ \textcircled{2}\ \textcircled{16} \\ \cancel{7}\,\cancel{2}.\cancel{3}\,\cancel{6}\,0 \\ -\quad 5.070 \\ \hline 67.290 \end{array} \rightarrow \begin{array}{r} 67.290 \\ +\,21.109 \\ \hline 88.399 \end{array}$$

(c) 18 – 4.2 ÷ 6 + 1.3 × 0.4

18 – 0.7 + 0.52

18 – 0.7 + 0.52

17.3 + 0.53

= 17.82

(d) 6.4 ÷ 1.6 of 5 + 1.3 × 3.1 – 0.07

4 × 5 + 1.3 × 3.1 – 0.07

20 + 4.03 – 0.07

24.03 – 0.07

= 23.96

(e) 50.3 – 5.6 ÷ 0.7 × 1.6 of 35

50.3 – 8 × 1.6 × 3.5

50.3 – 44.80

= 5.50

(f) 23.6 – 0.6 of (9.4 - 5.6) + 0.6 × 3.06

23.6 – 0.6 × (3.8) + 0.6 × 3.06

23.6 – 2.28 + 1.836

= 23.60 – 2.28 + 1.836

21.32 + 1.836

= 21.320 + 1.836

= 23.156

7 Geometry

Exercise 7.1

1. (a) Infinate

(b) One

2. (a) E,D,B,H

(b) F,C

(c) A

3. (b) Ray PQ or $\overrightarrow{PQ}$ [One end point]

(c) Line ST or $\overrightarrow{ST}$ Both end point]

(d) Line EF or $\overleftrightarrow{EF}$ [No end point]

(e) Interecting lines $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ [Intersect at a point 0]

(f) Parallel line $\overleftrightarrow{l}$ and $\overleftrightarrow{M}$ [will not interset at any point].

(g) Intersecting line $\overleftrightarrow{P}$ and $\overleftrightarrow{Q}$

(h) Parallel line $\overleftrightarrow{S}$ and $\overleftrightarrow{T}$ [will not interset at any point].

4. (a) A, B, P and Q

(b) $\overleftrightarrow{AB}$

(c) No line segment

(d) $\overrightarrow{PA}$, $\overrightarrow{PB}$ and $\overrightarrow{PQ}$

5. (i) (a) A line

(ii) (c) A ray

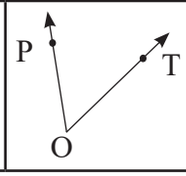
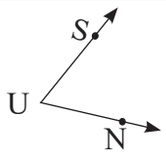
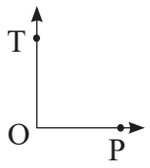
(iii) (b) A line segment

(iv) (c) A line

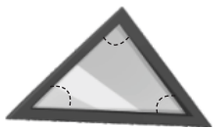
Exercise 7.2

1. (b) and (d) as they are forming vertex.

2.

	Angle	Arms	Vertex	Name of the angle
(a)		OP, OT	O	∠POT
(b)		US, UN	U	∠SUN
(c)		OT, OP	O	∠TOP

3. (a)  (b) 

(c)  (d) 

(e)  (f) 

(g)  (h) 

4. ∠PQR, ∠XYZ, ∠LMN, ∠EFG

Exercise 7.3

1. (a) 60° (b) 140°

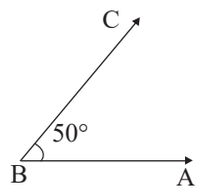
(c) 140° (d) 90°

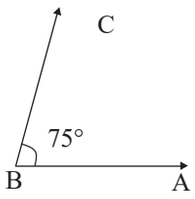
2. (a) 65° (b) 110°

(c) 90° (d) 120°

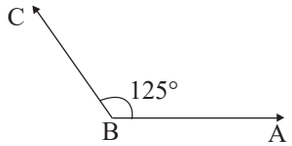
3. Draw agnles of following degree:

(a) 50° (b) 75°

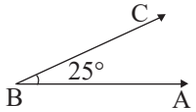




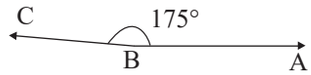
(c) 125°



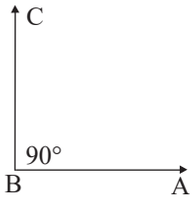
(d) 25°



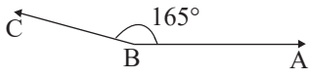
(e) 175°



(f) 90°



(f) 165°



Exercise 7.4

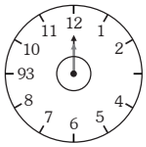
1. (a)

Answer: Reflex Angle

(b)

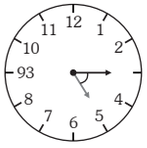
Answer: Right angle

(c)



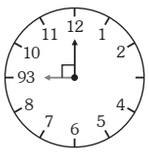
Answer: Complete angle

(d)



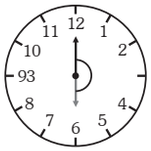
Answer: Acute angle

(e)



Answer: Right angle

(f)



Answer: Straight angle

2. (a) 30° = Acute angle [Less than 90°]

(b) 95° = Obtuse angle [More than 90° and less than 180°]

(c) 108° = Obtuse angle [More than 90° and less than 180°]

(d) 180° = Straight angle [180°]

(e) 90° = Right angle [90°]

(f) 360° = Complete angle [360°]

(g) 80° = Acute angle [Less than 90°]

(h) 125° = Obtuse angle [More than 90° and less htan 180°]

(i) 25° = Acute angle [Less than 90°]

(j) 265° = Reflex angle [More than 180° and less than 360°]

3. (a) ∠ DEF: Acute angle

(b) ∠ ABC: Straight angle

(c) ∠ XYZ: Right angle

(d) ∠ MNO: Reflex angle

Exercise 7.5

1. (a) A, B, C

(b) ∠ABC, ∠BCA, ∠CAB

(c) AB, BC, CA

2. (a) Equilateral triangle [AB = BC = CA = 3cm]

(b) Scalene triangle [All sides are of different measure]

(c) Isoscles triangle [PQ = QR = 4cm

(d) Scalene triangle [All sides are of different measure]

(e) Equilateral triangle (ED = DF = FE = 4cm)

(f) Scaleme triangle [all sides are of different measure]

3. (a) Yes, as the sum of angles = 180°

(b) No, as the sum of angles is not 180°

(c) Yes, as the sum of angles = 180°

(d) No, as the sum of angles is not 180°

4. (a), (b), (d) are the possible triangles as the sum of measures of any two sides of a triangles is greater than the measure of third side.

5. (a) (iv) 3

(b) (ii) 1

(c) (ii) acute angled triangle

(d) (iii) Scalence triangle

(e) (ii) 1

Execise 7.6

1. (a) 0

(b) AB

(c) OA, OB and OP

(d) CD, AB

(e) A, P, D, B and C

(f) R and Q

(g) O, M, N, F

(h) 2

(i) Chord

(j) Diameter

2. (a) False, as the diameter of the circle is double the radius

(b) True

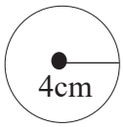
(c) False, as a circle has only 1 centre.

(d) True

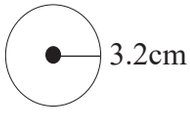
(e) False, as it is not necessary that every chord of the circle will pass throught the centre of the circle.

(f) True

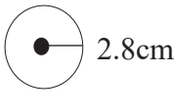
3. (a)



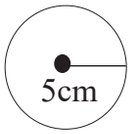
(b)



(c)



(d)



4. Radius = $\frac{\text{Diameter}}{2}$

(a) D = 6cm

$R = \frac{6}{2}$cm

R = 3cm

(b) D = 9cm

$R = \frac{9}{2}$cm

R = 4.5cm

(c) D = 23cm

$R = \frac{23}{2}$ cm

R = 11.5cm

(d) D = 16cm

$R = \frac{16}{2}$ cm

R = 8cm

5. Circumference = r × 6.28

(a) R = 14cm

C = 14 × 6.28

C = 87.92cm

(b) R = 2.1cm

C = 2.1cm × 6.28

C = 13.188cm

(c) R = 3.5cm

C = 3.5cm × 6.28

= 21.98cm

(d) R = 7cm

C = 7cm × 6.28

C = 43.96cm

Learning Updates

1. (a) Vertex (b) Degree

(c) Straight (d) Complete

(e) different (f) 6.28

(g) 2

2. (a) False, as one point of the radius lies on the centre.

(b) True

(c) True

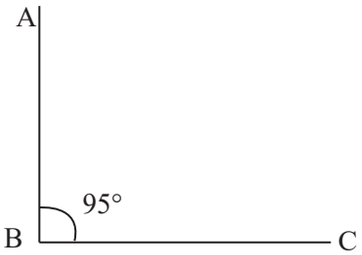
(d) false, as an equilateral triangle is a triangle in which all three sides are equal

(e) True

(f) True

3. ∠ABC = 45°, ∠PQR = 30°, ∠STU = 105°, ∠RST = 120°, ∠DEF = 90°

4.



5. (a) Angle (b) and (c) Cannot be measure of the three angle of a triangle as their sum is not equal to 180°.

(b) ∠P + ∠Q + ∠R = 75° + 60° + 50° = 185°, 185 ° ≠ 180°

(c) ∠X + ∠Y + ∠Z = 80° + 40° + 45° = 165°, 165° ≠ 180°

6. Circumference = r × 6.28

(a) R = 7cm

C = 7cm × 6.28

C = 43.96cm

(b) R = 6.3cm

C = 6.3cm × 6.28

C = 39.564cm

(c) R = 5.6cm

C = 5.6cm × 6.28

C = 35.168cm

(d) R = 4.2cm

C = 4.2cm × 6.28

C = 26.376cm

7. (a)

Obtuse angle

(b)

Acute angle

(c)

Straight angle

(d)

Right angle

Multiple choice Questions

1. (d) 360°

2. (c) reflex angle

3. (d) ↕↔

4. (b) always greater than the length of the third side.

5. Sum of every angle of a triangle is 180°

Let the third side be ∠**x.**

40° + 35° + ∠x = 180°

75° + ∠X = 180, ∠X = 180° − 75°, ∠X = 105°

(d) 105°

Skills Check

1. **12 to 3**

1 right angle

6 to 9

1 right angle

12 to 9

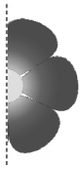
2 right angles

Answer: The hour hand turned by 2 right angles

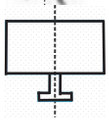
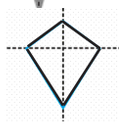
2. 11 triangles

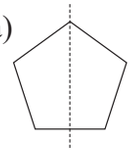
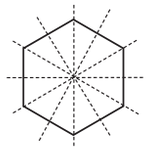
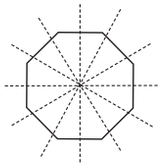
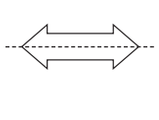
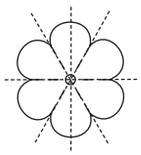
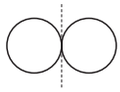
8 Symmetry and Patterns

Get Started

Exercise 8.1

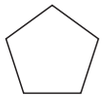
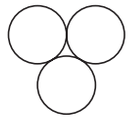
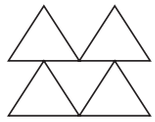
1. (a) 
(b) 
(c) 
(d) 

2. (a) 
(b) 
(c) 
(d) 
(e) 
(f) 

3. (a) B, C, D, E and K
(b) A, M, T, U, V, W and Y
(c) H, I, O and X

4. (a) 1
(b) 2
(c) 3
(d) 6
(e) 0

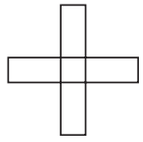
Exercise 8.2

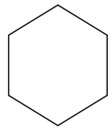
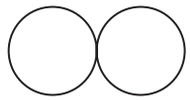
1. (a) 
(c) 
(d) 
(f) 

2. To done by students

Exercise 8.3

1. (a) Flip
(b) Turn
(c) Slide
(d) Turn
(e) Turn
(f) Flip

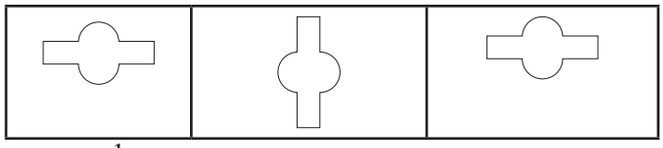
2. (b) 
(c) 

3. (a) 
(d) 

4. (a) No letter
(b) H, I, N, O, S, X and Z

5.

Shape	On $\frac{1}{4}$ turn	On $\frac{1}{2}$ turn
		
		
		



6. (a) $\frac{1}{4}$ turn

(b) Complete turn

7. (b)  hour hand at 8

(c)  at 11

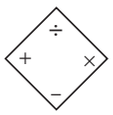
(d)  at 2

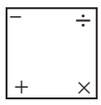
8. (b)  at 8

(c)  at 3

(d)  at 10

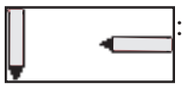
Exercise 8.4

1. (a) 

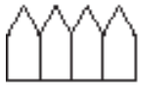
 $\frac{1}{4}$ turn

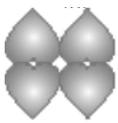
(b) 

 Quarter turn

(c)  : Quarter turn

(d) 

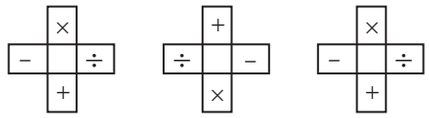
2. (a) 

(b) 

3. (a) 

(b) 

4. (a) 

(b) 

5. (a) 15 (b) 49

6. (a) $37 \times 12 = 444$; $37 \times 15 = 555$

(b) $777762223 \div 7777 - 99999$; $7777622223 \div 77777 = 99999$

(c) $1234321 \div 11111 = 11111$

7. (a) 19, 22, 25, 28

(b) 16, 22, 29, 37

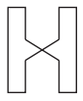
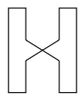
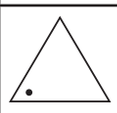
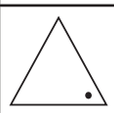
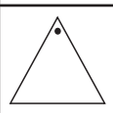
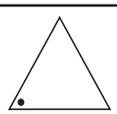
(c) 567

Learning Updates

1. (a) One (b) Four

(c) Two (d) Two

2.

	Shape	Half a turn	Quarter a trun	Three-fourth a turn
(a)				
(b)				
(c)				

Multiple Choice Question

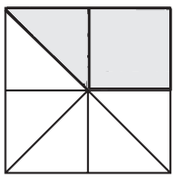
1. Answer: (a) 

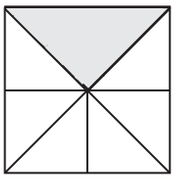
2. Answer: (b) 

3. Answer: (a) 27

4. Answer: (b) 36

Skills Check





9 Measurement

Get Started

1. (a) Juice in litres as we measure liquid in litres.

(b) Rice in kilogram as we measures weights in kilograms

(c) Cloth Pieces in meters as we measure length in metre.

Exercise 9.1

1.

	Pen	Length		
		in cm and mm	**cm**	**mm**
(a)		3 cm and 6mm	3	6
(b)		4 cm and 6mm	5	6
(c)		5cm and 6mm	5	6
(d)		6cm and 6mm	6	6

2.

	Length in full form	Length in bigger units	Length of smaller units
(a)	**48m 24cm**	$1\text{cm} = \frac{1}{100}\text{m}$ $48\text{m } 24\text{cm} = 48 + \frac{24}{100}\text{m}$ $= 48\text{m} + 0.24\text{m}$ $= 48.24\text{m}$	1m = 100cm: 48m 24cm = 48 × 100cm 24cm = 4800cm + 24cm = 4824cm
(b)	55.36m 1m = 100cm, 55.365m 55m + 0.36m = 55m + 0.36 × 100cm = 55m + 36cm = 55m 36cm	**55.36m**	1m = 100cm 55.36m = 55.36 × 100cm = 5536cm
(c)	1832cm = 1800cm + 32cm $1\text{cm} = \frac{1}{100}$ $1800\text{cm} + 32\text{cm} = \frac{1800}{100}\text{m} + 32\text{cm}$ = 18m 32cm	$1\text{cm} = \frac{1}{100}\text{m}$ $18\text{m } 32\text{cm} = 18\text{m} + \frac{32}{100}\text{m}$ $= 18\text{m} + 0.32\text{m}$ $= 18.32\text{m}$	**1832cm**
(d)	**24cm 4mm**	$1\text{mm} = \frac{1}{10}\text{cm}$ $24\text{cm } 4\text{mm} = 24\text{cm} + \frac{4}{10}\text{cm}$ $= 24\text{cm} + 0.4\text{cm}$ $= 24.4\text{cm}$	1cm = 10mm 24cm 4mm = 24 × 10mm + 4mm = 240mm + 4mm = 244mm

(e)	19.3cm = 19cm + 0.3cm 1cm = 10mm 19cm + 0.3cm = 19cm + 0.3 × 10mm = 19cm + 3mm = 19cm 3mm	**19.3cm**	19cm 3mm = [1cm = 10mm] = 19 × 10mm + 3mm 190mm + 3mm = 193mm
(f)	**27cm 3mm**	1mm = $\frac{1}{10}$cm 27cm 3mm = 27cm + $\frac{3}{10}$cm = 27cm + 0.3cm = 27.3cm	1cm = 10mm 27cm 3mm = 27 × 10mm + 3mm = 270mm + 3mm = 273mm

3. (a) 18km to hm

1km = 10hm

18km = 18 × 10hm

= 180hm

(b) 12km to dm

1km = 1,0000dm

12km = 12 × 10,000

= 120000dm

(c) 25dam to m

1dam = 10m

25 dam = (25 × 10)m

= 250m

(d) 57dm to mm

1dm = 100mm

57dm = 57 × 100m

= 5700mm

(e) 42m to cm

1m = 100cm

42m = 42 × 100cm

42m = 42 × 100cm

= 4200cm

(f) 3450cm to km

1cm = $\frac{1}{100000}$km

3450cm = $\frac{3450}{100000}$km

= 0.3450km

(g) 300mm into dam

1mm = $\frac{1}{1000}$km

300m = $\frac{300}{1000}$dam

= 0.3dam

(h) 326dam to km

1dam = $\frac{1}{100}$km

326dam = $\frac{326}{100}$km

= 3.26km

(i) 2700cm to dam

1cm = $\frac{1}{1000}$dam

2700cm = $\frac{2700}{1000}$dam

= 2.7dam

4. (a) 6.34m = 6m + 0.34m

1m = 100cm

6m + 0.34 = 6m + 0.34 × 100cm

= 6m + 34cm

= 6m 34cm

(b) 9.3km = 9km + 0.3km

1km = 1000m

9km + 0.3km = 9km + 0.3 × 1000m

= 9km + 300m

= 9km 300m

(c) 8.2cm = 8cm + 0.2cm

1cm = 10mm

8cm + 0.2cm = 8cm + 0.2 × 1000mm

= 8cm + 2mm

= 8cm 2mm

(d) 1km = 1000m

$4.975\text{km} = 4.975 \times 1000\text{m}$

$= 4975\text{m}$

(e) $1\text{m} = \frac{1}{1000}\text{km}$

$650\text{m} = \frac{650}{1000}\text{km}$

$= 0.650\text{km}$

(f) 1m = 100cm

$2.94\text{m} = 2.94 \times 100\text{cm}$

$= 294\text{cm}$

(g) 1km = 1000m

$18.3 = 18.3 \times 1000\text{m}$

$= 18300\text{m}$

(h) $1\text{m} = \frac{1}{1000}\text{km}$

$4003\text{m} = \frac{4003}{1000}\text{km} = 4.003\text{km}$

Exercise 9.2

1. (a)

m		cm	
①		①	
6	4	3	6
1	6	0	5
+ 0	8	3	1
8	8	7	2

= 88m 72cm

$1\text{cm} = \frac{1}{100}\text{m}$

$88\text{m } 72\text{cm} = \frac{72}{100}\text{m}$

$= 88\text{m} + 0.72\text{m}$

$= 88.72\text{m}$

(b)

km		m		
		①	①	
0	5	2	4	8
1	1	0	5	5
+	3	0	0	6
1	9	3	0	9

19km 309m

$1\text{m} = \frac{1}{1000}\text{km}$

$19\text{km } 309\text{m} = 19\text{km} + \frac{309}{1000}\text{m}$

$= 19\text{km} + 0.309 = 19.309$

(c)

km		hm	dam		m		
①			①			①	
8		3	0	4	0	0	8
+ 3		8	0	6	0	0	5
12		1	1	0	0	1	5

= 12km 1hm 10dam 10m

$1\text{hm} = \frac{1}{10}$, $1\text{dam} = \frac{1}{100}\text{km}$ $1\text{m} = \frac{1}{1000}\text{km}$

$= 12\text{km} + \frac{1}{10}\text{km} + \frac{10}{100}\text{km} + \frac{10}{1000}\text{km}$

$= 11\text{km} + 0.1\text{km} + 0.10\text{km} + 0.010\text{km}$

$= 12.21\text{km}$

2. (a)

m		mm		
	⑰	⑩		
⑥	7̸	0̸	⑩	
7̸	8̸	1̸	0̸	2
− 4	8	3	3	1
2	9	7	7	1

= 29m 791mm

$1\text{mm} = \frac{1}{1000}\text{m}$

29m 771m = 29m

$\frac{771}{1000}\text{m} = 29\text{m} + 0.771\text{m}$

$= 29.771\text{m}$

(b)

km			m		
	⑨				
	⓪	1̸0̸	⑭		
	1̸	0̸	4̸	6	0	0
−	0	3	6	0	0	0
	0	6	8	1	0	0

68km 100cm

$1\text{m} = \frac{1}{1000}\text{km}$

$68\text{km } 550\text{m} = 68\text{km} + \frac{100}{1000}\text{km}$

$= 68\text{km} + 0.100\text{km}$

$= 68.100\text{km}$

(c)

km		m		
			④	⑩
	2	6	9	~~5~~ ~~0~~
–	1	1	3	2	5
	1	5	6	2	5

15km 625m

$1m = \frac{1}{1000}km$

$15km\ 625 = 15km + \frac{625}{1000}\ m$

$= 15km + 0.625km$

$= 05.625km$

3. (a)

		m		cm	
		①		①	
		1	6	. 2	8
×				2	1
		①			
		1	6	2	8
+	3	2	5	6	×
	3	4	1	8	8

$= 341.88$

$1m = \frac{1}{100}cm$

16cm 28cm

$16m + \frac{28}{100}m$

$= 16m + 0.28m$

$= 16.28$

(b)

	km			m		
					①	
		2	3	. 1	0	5
×					1	2
		4	6	2	1	0
+	2	3	1	0	5	×
	2	7	7	2	6	0

$= 277.260$

$1m = \frac{1}{1000}m$

$23km\ 105m = 23 + \frac{105}{1000}km$

$= 23.105km$

(c)

		m			mm	
					①	
		1	6	. 0	0	8
×					1	5
	①			①		
		8	0	0	4	0
+	1	6	0	0	8	×
	2	4	0	1	2	0

$= 240.120m$

$1mm = \frac{1}{1000}m$

$16m\ 8mm = 16m + \frac{8}{1000}m$

$= 16m + 0.008m$

$= 16.008m$

4. (a) $1cm = \frac{1}{100}m$

$98m\ 98cm = 98m + \frac{98}{100}m$

$= 98m + 0.98m$

$= 98.98m$

$= 98.98m \div 43$

$= 14.14m$

```
      14.14
   ┌──────
43 ) 98.98
     – 7
     ────
      28
     – 28
     ────
       09
      – 7
      ────
       28
      – 28
      ────
        0
```

(b) $1mm = \frac{1}{10}cm$

$49cm\ 8mm = 49cm + \frac{8}{10}cm$

$= 49cm + 0.8cm$

$= 49.8cm$

```
      12.45
   ┌──────
43 ) 49.8
     – 4
     ────
       09
      – 8
      ────
        18
       – 16
       ────
         20
        – 20
        ────
          0
```

$= 12.45cm$

(c) $1m = \frac{1}{1000}km$

$9km\ 327m = 9km + \frac{327}{1000}km$

$= 9km + 0.327km$

$= 9.327km$

$$\begin{array}{r} 3.109 \\ 3\overline{)\,9.327} \\ -\,9 \\ \hline 03 \\ -\,3 \\ \hline 027 \\ -\,27 \\ \hline 0 \end{array}$$

= 3.109cm

5. (a) Length of one piece of ribbon: 3.12m

Length of another piece of ribbon: 85cm

Length of the resultant piece of ribbon: Length of first ribbon + Length of second ribbon

= 3.12 + 85cm

1cm = $\frac{1}{100}$m

3.12m + 85cm = 3.12 + $\frac{85}{100}$m

= 3.12m + 0.85m

= 3.97m

Answer: Length of resultant piece of ribbon is 3.97m

(b) Length of ribbon: 4m 20cm

Length of 40 such ribbons: Length of ribbon × 40

= 4m 20cm × 40

1cm = $\frac{1}{100}$m

4m 20cm = 4m + $\frac{20}{100}$m

= 4m + 0.20m

= 4.20m

= 4.20m × 40 = 168.00

$$\begin{array}{r} 4.20 \\ \times\quad 40 \\ \hline 168.00 \end{array}$$

[2 decimal places]

Length of 40 such ribbons is 168cm.

(c) Length of rope: 8m 20cm

Number of times rope was wrapped around the packet: 04

Length of rope if it was wrapped around once: Length of rope ÷ Number of times, it was wrapped

= 8m 20cm ÷ 4

1cm = $\frac{1}{100}$m

8m 20cm = 8m + $\frac{20}{100}$m

= 8m + 0.20m

= 8.20m ÷ 4 = 2.05m

$$\begin{array}{r} 2.05 \\ 4\overline{)\,8.20} \\ -\,8 \\ \hline 020 \\ -\,20 \\ \hline 0 \end{array}$$

Answer: Length of ribbon if the rope was wrapped once is 2.05m

Exercise 9.3

1. If cheetah can go 968km in 8 hours, then its speed is [Speed = Distance ÷ Time]

968km ÷ 8hours

= 121kmph

Answer: Speed of Cheetah is 121kmph

$$\begin{array}{r} 12 \\ 8\overline{)\,968} \\ -\,8 \\ \hline 16 \\ -\,16 \\ \hline 08 \\ -\,8 \\ \hline 0 \end{array}$$

2. Distance = 289.8km

Time = 3 hours

Speed = $\frac{\text{Distance}}{\text{Time}}$

$$\begin{array}{r} 96.6 \\ 8\overline{)289.8} \\ -\,27 \\ \hline 19 \\ -\,18 \\ \hline 18 \\ -\,18 \\ \hline 0 \end{array}$$

= $\left(\frac{289.8}{3}\right)$kmph = 96.6 kmph

Answer: Speed of Ostrich is 96.6kmph

3. Speed: 80kmph

Time: 3 hours

Distance: Speed × Time

= (80 × 3)km

= 240km

Answer: Distance covered by train in 3 hours at the speed of 80km per hour is 240km.

4. Time taken by Rabbit to cover 15 km = 1 hour

Time taken by Rabbit to cover 1 km = $\frac{1}{15}$hours

Time taken by Rabbit to cover 45km: Time taken to cover 1 km × 45

= $\left(\frac{1}{15} \times 45\right)$ hours = 3 hours

Hence, the Rabbit took 3 hours to cover 45km.

5. Speed = 97kmph

Distance = 582km

Time = $\frac{\text{Distance}}{\text{Time}}$

Time: $\left(\frac{582}{97}\right)$hours = 6hours

Answer: Swordfish will trake will take hour to cover 582km at the speed of 97kmph

Exercise 9.4

1.

	Weight in full from	Weight in bogger units	Weight in smaller units
(a)	**5kg 42g**	$1g = \frac{1}{1000}kg$ $5kg\ 42g = 5kg + 48 + \frac{42}{1000}g$ $= 5kg + 0.042kg$ $= 5.042m$	$1kg = 1000g$ $5kg\ 42g = 5 \times 1000g + 42g$ $= 5000g + 42g = 5042g$
(b)	$5.19kg = 5kg + 0.19kg$ $1kg = 1000g$ $5kg + 0.19kg = 5kg + 0.19 \times 1000g$ $= 5kg + 190g$ $= 5kg\ 190g$	**5.19kg**	$5kg\ 190g$ $1kg = 1000g$ $5kg\ 190g = 5 \times 1000g + 190g$ $= 5000g + 190g = 5190g$
(c)	**9kg 500g**	$9kg\ 500g$ $1g = \frac{1}{1000}kg$ $9kg\ 500g = \frac{500}{1000}kg = 0.500kg$ $= 9kg + 0.500kg = 9.500kg$	$1kg = 1000g$ $9kg\ 500g = 9 \times 1000g + 500g$ $= 9000 + 500g = 9500g$
(d)	**8g 234mg**	$1mg = \frac{1}{1000}g$ $8g\ 234mg = 8g + \frac{234}{1000}g$ $= 8g + 0.234$ $= 8.234g$	$1g = 1000mg$ $8g\ 234mg = 8 \times 1000mg + 234mg$ $= 8234mg$
(e)	$6kg\ 100g$	$1g = \frac{1}{1000}kg$ $6kg\ 110g = 6kg + \frac{110}{1000}kg$ $= 6kg + 0.110kg$ $= 6.110kg$	$1kg = 1000g$ $6kg\ 110g = 6 \times 1000g + 110g$ $= 6000g + 110g$ $= 6110g$

2. (a) 8.56kg into g

1kg = 1000g

8.56kg = 8.56 × 1000g

= 8560

(b) 0.325kg into g

1kg = 1000g

0.325kg = 0.32 × 1000g

= 325g

(c) 4.275kg = 4.275 × 1000g

= 4275g

3. (a) 375g into kg

$1g = \frac{1}{1000}kg$

$375g = \frac{375}{1000}kg$

= 0.375kg

(b) 5264g into kg

$1g = \frac{1}{1000}kg$

$5264g = \frac{5264}{1000}kg$

= 5.264kg

(c) 9200g into kg

$9200g = \frac{9200}{1000}kg$

= 9.200kg

4. (a) 48kg to g

1kg = 1000g

48kg = 48 × 1000g

= 48000g

(b) 25dag to dg

1dag = 100dg

25dag = 25 × 100dg

= 2500dg

(c) 64g to mg

1g = 1000mg

64g = 64 × 1000mg

= 64000mg

(d) 72dg to mg

1dg = 100mg

72dg = 72 × 100mg

= 7200mg

(e) 86dag to g

1dag = 10g

86dag = 86 × 10g

= 860g

(f) 81g to mg

1g = 1000mg

81g = 81 × 1000mg

= 81000mg

(g) 550g to kg

$1g = \frac{1}{1000}kg$

$550g = \frac{550}{1000}kg$

= 0.550kg

(h) 4326dg to hg

$1dg = \frac{1}{1000}hg$

$4326dg = \frac{4326}{1000}kg$

= 4.326hg

(i) 1204dg to kg

$1dg = \frac{1}{10000}kg$

$= 1204kg = \frac{1204}{10000}kg = 0.1204kg$

(j) 25mg to cg

$1mg = \frac{1}{10}cg$

$25mg = \frac{25}{10}cg$

= 2.5cg

5. (a) 5.324kg = 50kg + 0.324 × 1000g

= 5kg + 324g

(b) 2.004kg = 2kg + 0.004g

1kg = 1000g

2kg + 0.004kg = 2kg + 0.004 × 1000g

= 2kg + 4g

(c) 0.650kg

1kg = 100g

0.650kg = 0.650 × 1000g

= 650g

(d) 48.3kg

1kg = 1000g

48.3kg = 48.3 × 1000g

= 48300g

(e) 5.5kg

1kg = 1000g

5.5kg = 5.5 × 1000g

= 5500g

(f) 3260g = 3000g + 260g

$= \frac{1}{1000}$kg

3000g + 260g = $\frac{3000}{1000}$kg + 260g

= 3kg + 260g

= 3kg 260g

3kg 260g = 3kg + $\frac{260}{1000}$kg

= 3kg + 0.260kg

= 3.260kg

(g) 1999g = 1000g + 999g

1g = $\frac{1}{1000}$kg

1000g + 999g = $\frac{1000}{1000}$kg + 999g

= 1kg + 999g

= 1kg 999g

1kg 999g = 1kg + $\frac{999}{1000}$kg

= 1kg + 0.999kg

= 1.999kg

Exercise 9.5

1. (a)

kg		g		
①		①	①	
2	4	3	4	5
0	7	1	1	0
+	2	0	4	5
3	3	5	0	0

= 33kg 500g

1kg = $\frac{1}{1000}$kg

33kg 500g = 33kg + $\frac{500}{1000}$kg

= 33kg + 0.500kg

= 33.500kg

(b)

kg		hg	dag		g		
①			①			①	
4		8	0	5	0	0	6
+ 3		2	0	9	0	0	4
8		1	1	4	0	1	0

= 8kg 14dag 10g

1dag = $\frac{1}{100}$kg, 1g = $\frac{1}{1000}$kg

= 8kg + $\frac{14}{100}$kg + $\frac{10}{1000}$kg

= 8kg + 0.14kg + 0.010kg

= 8.150kg

2. (a)

kg			g		
1	0	9	3	7	9
–	5	5	3	1	2
	5	4	0	6	7

= 54g 67g

= 54.067g

(b)

kg		hg	dag		g		
			⑨	⑭	⑨	⑨	
		⑦	~~10~~	~~4~~	~~10~~	~~10~~	⑬
1	2	~~8~~	~~0~~	~~5~~	~~0~~	~~0~~	~~3~~
–	7	7	0	7	0	0	7
	5	0	9	7	9	9	6

or

kg	hg	dag	g
	⑦	⑭	⑬
1 2	~~8~~	~~5~~	~~3~~
– 7	7	7	7
5	0	7	6

3. (a) 16kg 5g

1g = $\frac{1}{1000}$kg

5g = $\frac{5}{1000}$kg = 0.005g

16kg 5g = 16 + 0.005g

= 16.005g

	①			③		
	1	6	.	0	0	5
×					3	0
	0	0	0	0	0	
+	4	8	0	1	5	×
	4	8	0	1	5	0

= 480.150 [3 decimal points]

(b) 42kg 395g by 10

$1g = \frac{1}{1000}kg$

$42kg\ 395g = 42kg + \frac{395}{1000}kg$

$= 42kg + 0.395kg$

$= 42.395kg$

$42.395 \times 10 = 423.95$

[When we multiply a decimal number by 10, the decimal points shifts to the right by one place]

(c) 8 kg 9 hg 6 dg 5 g by 24

$1\ hg = \frac{1}{10}kg$

$9\ hg = \frac{9}{10}kg = 0.9kg$

$6\ dag = \frac{1}{100}kg$

$= \frac{6}{100}kg = 0.06kg$

$1g = \frac{1}{1000}kg,\ 5g = \frac{5}{1000}kg = 0.005kg$

$= (8kg + 0.9kg + 0.06kg + 0.005kg) \times 24$

$= 215.16kg$

4. (a) $5109g \div 3$

$$\begin{array}{r} 1703 \\ 3\overline{)\ 5109} \\ -\ 3\downarrow\ \ \\ \hline 21\ \ \\ -\ 21\downarrow \\ \hline 009 \\ -\ 9 \\ \hline 0 \end{array}$$

$= 1703g$

(b) 350kg by 20

$1g = \frac{1}{1000}kg$

$350kg\ 50g = 350kg + \frac{50}{1000}kg$

$= 350kg + 0.050kg$

$= 350.050kg$

$= 17.525kg$

$$\begin{array}{r} 17.525 \\ 20\overline{)350.050} \\ -\ 20\downarrow\ \ \ \ \\ \hline 150\ \ \ \ \\ -\ 140\downarrow\ \ \ \\ \hline 100\ \ \ \\ -\ 100\downarrow\ \ \\ \hline 050\ \ \\ -\ 40\ \ \\ \hline 100 \\ -\ 100 \\ \hline 0 \end{array}$$

(c) 19cg 5mg by 5

$1cg = \frac{1}{10}mg$

$19cg\ 5mg = 19cg + \frac{5}{10}cg$

$= 1.9cg + 0.5cg$

$= 19.5cg$

$19.5cg \div 5 = 3.9cg$

$$\begin{array}{r} 3.9 \\ 5\overline{)\ 19.5} \\ -\ 15\downarrow \\ \hline 45 \\ -\ 45 \\ \hline 0 \end{array}$$

(d) 65kg 703g by 9

$1kg = \frac{1}{1000}g$

$65kg\ 703g = 65kg + \frac{703}{1000}kg$

$= (65kg + 0.703kg) \div 9$

$= 65.703kg \div 9 = 7kg\ 300g$

5. (a) Weight of 1 pencil box: 275g

Weigth of 28 pencil boxes in kg = 275g × 28

= 7900g

$$\begin{array}{rcccc} & \textcircled{1} & \textcircled{1} & & \\ & \textcircled{6} & \textcircled{4} & & \\ & 2 & 7 & 5 & \\ \times & & 2 & 8 & \\ \hline & 2 & 2 & 0 & 0 \\ + & 5 & 5 & 0 & \times \\ \hline & 7 & 7 & 0 & 0 \end{array}$$

$1g = \frac{1}{1000}kg$

$7700g = \frac{7700}{1000}kg$

$= 7.770kg$

Answer: Weight of 28 pencil boxes in kg is 7.900kg

(b) Weight of Apples: 3kg 450g

Weight of Mangoes: 2kg 500g

Weigth of Grapes: 1kg 125g

Total weight: Weigth of Apples + Weigth of Mangoes + Weight of Grapes

kg	g			
	①	①	①	
	3	4	5	0
	2	5	0	0
+	1	1	2	5
	7	0	7	5

= 3kg 450g + 2kg 500g + 1kg 125g

= 7kg 75g

Answer: Weight of fruits bought by Sunaina is 7kg 75g

(c) Number of balls in box: 36

Weight of box: 5580g

Weight of one ball in kg = Weigth of box ÷ Number of balls

= 5580g ÷ 36

= 155g

$1g = \frac{1}{1000}kg$

$15g = \frac{155}{1000}kg = 0.155kg$

Answer: Weight of 1 ball is 0.155kg.

$$\begin{array}{r} 155 \\ 36\overline{)\,5580} \\ -\,36\downarrow \\ \hline 198 \\ -\,180\downarrow \\ \hline 180 \\ -\,180 \\ \hline 0 \end{array}$$

Exercise 9.6

1.

	Capactity in full from	Capacity in bigger units	Capacity in smalller units
(a)	**730c*l* 5m*l***	$1ml = \frac{1}{10}cl$ $730cl\ 5ml = 730cl + \frac{5}{10}cl$ $= 730cl + 0.5cl$ $= 730.5cl$	$1cl = 10ml$ $730cl\ 5ml$ $730 \times 10ml + 5ml$ $= 7300ml + 5ml = 7305ml$
(b)	$8.908l = 8l + 0.908l$ $1l = 1000ml$ $8l + 0.908l = 8l + 0.908 \times 1000ml$ $= 8l + 908ml = 8l\ 908ml$	**8.908*l***	$8l\ 908ml$ $1l = 1000ml$ $8l\ 908ml = 8 \times 1000ml + 908ml$ $= 8000ml + 908ml = 8908ml$
(c)	**7*l* 305m*l***	$1ml = \frac{1}{1000}l$ $7l\ 305ml = 7l + \frac{305}{1000}$ $= 7l + 0.305l$ $= 7.305l$	**7305m*l***
(d)	**12*l* 28ml**	$1ml = \frac{1}{1000}l$ $12l\ 28ml = 12l + \frac{28}{1000}l$ $= 12l + 0.028l$ $= 12.028l$	$1l = 1000ml$ $12l\ 28ml = 12 \times 1000ml + 28ml$ $= 12000ml + 28ml$ $= 12028ml$
(e)	$24.408l = 24l + 0.408l$ $1ml = 1000ml$ $24l + 0.408l = 24l + 0.408 \times 1000ml$ $= 24l + 408ml$ $= 24l\ 408ml$	**24.408*l***	$1l = 1000ml$ $24l\ 408ml = 24 \times 1000ml + 408ml$ $= 24000ml + 408ml$ $= 24408ml$

2. (a) 430.5c*l* into m*l*

$1cl = 10ml$

$430.5cl = 430.5 \times 10ml$

$= 4305ml$

(b) 19.36dl into ml

1l = 100ml

19.3dl = 19.36 × 100ml

= 1936ml

(c) 6.105l into ml

1l = 1000ml

6.105l = 6.105 × 1000ml

= 6105ml

2. (a) 1cl = 10ml

430.5cl = (430.50 × 10)ml

= 4305

(b) 1dl = 100ml

19.36dl = (19.36 × 100)ml

= 1936ml

(c) 1l = 1000ml

6.105ml = (6.105 × 1000)l

= 6105l

3. (a) 1ml = $\frac{1}{1000}l$

5648ml = $\frac{5648}{1000}$

= 5.6480l

(b) 18.46hl into l

1hl = 100ml

18.46 × 100ml

= 1846ml

(c) 9.246kl into l

1kl = 1000l

9.246kl = 9.246 × 1000l

= 9246l

4 (a) 1340cl into da$l$

1cl = $\frac{1}{1000}$da$l$

1340cl = $\frac{1340}{1000}$da$l$

= 1.340dal

(b) 6000l to kl

1l = $\frac{1}{1000}$kl

6000l = $\frac{6000}{1000}$kl = 6kl

(c) 55cl to l

1cl = $\frac{1}{100000}$

55cl = $\frac{55}{100000}$

= 000.55l

(d) 93da$l$ to kl

1da$l$ = $\frac{1}{10}$ kl

93da$l$ = $\frac{93}{10}$

= 0.93kl

(e) 140dl into l

1dl = $\frac{1}{10}l$

140dl = $\frac{140}{10}l$

= 14l

(f) 26da$l$ to ml

1da$l$ = 10000ml

26da$l$ = 26 × 10000ml

= 260000ml

5. (a) 2.450l = 2l + 0.450l

1l = 1000ml

2l + 0.450l = 2l + 0.450 × 1000ml

= 2l + 450ml

= 2l 450ml

(b) 3.765l + 3l + 0.765l

1l = 1000ml

3l + 0.765l = 0.765 × 1000ml

= 3l + 765ml

= 3l 765ml

(c) 68.3l

1l = 1000ml

68.3l = 68.3 × 1000ml

= 68300ml

(d) 1465ml

1ml = $\frac{1}{1000}l$

1465ml = $\frac{1465}{1000}l$

= 1.465l

(e) $1l = 1000\text{m}l$

$38l = 38 \times 1000\text{m}l$

$= 38000\text{m}l$

(f) $2005\text{m}l$

$1\text{m}l = \frac{1}{1000}l$

$2005\text{m}l = \frac{2005}{1000}l$

$= 2.005l$

(g) $3\frac{1}{2}l = \frac{2 \times 3 + 1}{2}l$

$= \frac{6 + 1}{2}l = \frac{7}{2}l$

$= 3.5l$

$1l = 1000\text{m}l$

$3.5l = 3.5 \times 1000\text{m}l$

$= 3500\text{m}l$

(h) $9\frac{1}{4}l = \frac{4 \times 9 + 1}{4} = \frac{36 + 1}{4}l = \frac{37}{4}l = 9.25l$

$1l = 1000\text{m}l$

$9.25l = 9.25 \times 1000\text{m}l$

$= 9250\text{ml}$

Exercise 9.7

1. (a)

l		m*l*		
		①		
	6	2	9	2
+	7	3	8	5
1	3	6	7	7

$13l\ 677\text{m}l = [1\text{m}l = \frac{1}{1000}l]$

$13\text{l}\ 677\text{m}l = 13l + \frac{677}{1000}l$

$= 13l + 0.677l$

$= 13.677l$

(b)

k*l*		h*l*	da*l*		*l*		
①			①			①	
	2	5	0	6	0	0	8
+	4	6	0	4	0	0	5
	7	1	1	0	0	1	0

$7\text{k}l\ 1\text{h}l\ 10\ \text{da}l\ 1l$

$1\text{h}l = \frac{1}{10}\text{k}l,\ 1\text{da}l = \frac{1}{100}\text{k}l,\ 1l = \frac{1}{1000}\text{k}l$

$= 7\text{k}l + \frac{1}{10}\text{k}l + \frac{10}{100}\text{k}l + \frac{10}{1000}\text{k}l$

$= 7\text{k}l + 0.1\text{k}l + 0.01\text{k}l + 0.010\text{k}l$

$= 7.210\text{k}l$

2. (a) $1\text{m}l = \frac{1}{1000}l$

$4l\ 655\text{m}l = \frac{4l + 635}{1000}\text{m}l$

$= 4l + 0.655l$

$= 4.655l$

$= 4\text{l}\ 655\text{ml}$

l		m*l*		
	⑧	⑭		
	~~9~~	~~4~~	5	5
−	4	8	0	0
	4	6	5	5

(b)

l		m*l*		
	⑬			
	① ~~3~~	⑫		
	~~2~~ ~~4~~	~~2~~	8	9
−	1	6	6	7	5
	0	7	6	1	4

$7l\ 614\text{m}l$

$1\text{m}l = \frac{1}{1000}l$

$7l\ 614\text{m}l = 7l + \frac{614}{1000}l$

$= 7l + 0.614l$

$= 7.614l$

(c)

k*l*		h*l*	da*l*		*l*		
			⑨		⑨	⑨	
		①	~~10~~	⑬	~~10~~	~~10~~	⑫
7	1	~~9~~	~~0~~	~~4~~	~~0~~	~~0~~	~~2~~
− 1	0	2	0	6	0	0	4
6	1	6	9	7	9	9	8

$1\text{k}l\ 9\text{h}l\ 97\text{da}l\ 998l$

$1\text{h}l = \frac{1}{10}\text{k}l,\ \text{da}l = \frac{1}{100}\text{k}l$

$1l = \frac{1}{1000}l$

$4\text{h}l = \frac{6}{10}\text{k}l,\ 97\text{da}l = \frac{97}{100}\text{k}l$

$998l = \frac{998}{1000}\text{k}l$

$= 61\text{k}l + 0.6 + 0.97\text{k}l + 0.998\text{k}l$

$= 63.568\text{k}l$

or

kl		hl	dal	l
			~~13~~	
		~~8~~	~~3~~	~~12~~
7	1	9	4	2
− 1	0	2	6	4
6	1	6	7	8

$1hl = \frac{1}{10}kl$

$6hl = \frac{6}{10}kl = 0.6kl$

$1l = \frac{1}{1000}kl$

$8l = \frac{8}{1000}kl = 0.008kl$

$1dal = \frac{1}{100}kl$

$7dal = \frac{7}{100}kl$

$= 0.07kl$

3. (a) $5l$ 375ml by 38

$1ml = \frac{1}{1000}l$

$5l\ 375ml = 5l + \frac{375}{1000}ml$

$= 5l + 0.375l = 5.375l$

			(1)	(2)	(1)	
			(3)	(6)	(4)	
			5	. 3	7	5
×					3	8
	(1)					
		4	3	0	0	0
+	1	6	1	2	5	×
	2	0	4	2	5	0

$= 204.250$ [3-decimal point]

(b) $6l$ 409ml by 15

$1ml = \frac{1}{1000}l$

$6l\ 409ml = 6l + \frac{409}{1000}ml$

$= 6l + 0.409l$

$= 6.409l$

	(2)		(4)		
	6	. 4	0	9	
×			1	5	
		(1)			
	3	2	0	4	5
+	6	4	0	9	×
	9	6	1	3	5

$= 96.135$ [3-decimal points]

(c) 4dl 31ml by 24

$1ml = \frac{1}{100}dl$

$4dl\ 31ml = 4dl + \frac{31}{100}ml$

$4dl + 0.31dl = 4.31$

	(1)			
	4	. 3	1	
×		2	4	
(1)				
1	7	2	4	
+ 8	6	2	×	
1 0	3	4	4	

$= 103.44$ [2-decimal points]

4. (a) $47l$ 20m$l \div 10$

$1ml = \frac{1}{1000}l$

$47l\ 20ml = 47l + \frac{20}{1000}l$

$= 47l + 0.20l$

$= 47.020l$

$47.020 \div 10 = 4.7020$ [When we divide a decimal number by 10, the decimal points shifts to the left by one place]

(b) $4l$ 232m$l \div 8$

$1ml = \frac{1}{1000}l$

$4l\ 232ml = 4l + \frac{232}{1000}l$

$= 4l + 0.232l$

$= 4.232l$

$$
\begin{array}{r}
0.529 \\
8\overline{)\,4.232} \\
-\,40 \\
\hline
23 \\
-\,16 \\
\hline
72 \\
-\,72 \\
\hline
0
\end{array}
$$

$= 0.26l$

(c) $26l\ 480\text{m}l \div 16$

$1\text{m}l = \frac{1}{1000}l$

$26l\ 480\text{m}l = 26l + \frac{480}{1000}l$

$$
\begin{array}{r}
1.655 \\
16\overline{)\,26.480} \\
-\,16 \\
\hline
104 \\
-\,96 \\
\hline
88 \\
-\,80 \\
\hline
80 \\
-\,80 \\
\hline
0
\end{array}
$$

$= 26l + 0.480l$

$= 26.480$

$= 1.530$

(d) $102l\ 208\text{m}l \div 32$

$1\text{m}l = \frac{1}{1000}l$

$102l\ 208\text{m}l = 102l + \frac{208}{1000}l$

$= 102 + 0.208l = 102.208l$

$$
\begin{array}{r}
3.194 \\
32\overline{)\,102.208} \\
-\,96 \\
\hline
62 \\
-\,32 \\
\hline
300 \\
-\,288 \\
\hline
128 \\
-\,128 \\
\hline
0
\end{array}
$$

$= 3.194l$

5. (a) Capacity of one bucket: $18l\ 350\text{m}l$

Capacity of second bucket: $16l\ 755\text{m}l$

Total water in both the bucket: Capacity of one bucket + Capacity of second bucket

$= 18l\ 350\text{m}l + 16l\ 755\text{m}l$

$= 35l\ 105\text{m}l$

$1\text{m}l = \frac{1}{1000}l$

$35l\ 105\text{m}l = 35l + \frac{105}{1000}l$

$= 35l\ 0.105l$

l		m*l*		
①	①	①		
1	8	3	5	0
+ 1	6	7	5	5
3	5	1	0	5

$= 35.105l$

Answer: Total water in both the bucket is $35.105l$

(b) Quantity of 1 bottle: 2.25ml

Quantity of 75 such bottles: Quantity of 1 bottle × 75

		①	③		
		①	②		
		2	. 2	5	
×			7	5	
	1	1	2	5	
+ 1	5	7	5	×	
1	6	8	7	5	

$= 2.25\text{ml} \times 75$

$= 168.75$ [2 decimal places]

Answer: Quantity of 25 such bottles is ₹2.25m*l*

(c) Number of glasess: 25

Quantity of glasess: $8l\ 205\text{m}l$

Quantity of 1 glass: Quantity of glasses ÷ Number of glasses

$= 8l\ 205\text{ml} \div 25$

$1\text{m}l = \frac{1}{1000}l$

$8\text{l}\ 205\text{m}l = 8l + \frac{205}{1000}l = 8l + 0.205l$

$= 8.205l$

$8.205l \div 25 = 0.328l$

$$
\begin{array}{r}
0.3282 \\
25\overline{)\,8.205} \\
-\,75 \\
\hline
70 \\
-\,50 \\
\hline
205 \\
-\,200 \\
\hline
50 \\
-\,50 \\
\hline
0
\end{array}
$$

Quantity of 5 glasses: Quantity of 1 glass × 5

= 0.3282l × 5

= 1.641l [4 decimal places]

$$
\begin{array}{cccccc}
 & \textcircled{1} & \textcircled{1} & \textcircled{4} & \textcircled{1} & \\
 & 0 & . 3 & 2 & 8 & 2 \\
\times & & & & & 5 \\
\hline
 & 1 & 6 & 4 & 1 & 0
\end{array}
$$

Answer: Quantity of 5 such glasses is 1.641l

Learning Updates

1. (a) 3.5km into m

1km = 1000m

3.5km = 3.5 × 1000m

= 3500m

(b) 9.2km into m

1km = 1000m

9.2km = 9.2 × 1000m

= 9200m

(c) 0.45m into cm

1m = 100cm

0.45m = 0.45 × 100cm

= 45cm

(d) 520m into km

1m = $\frac{1}{1000}$km

520m = $\frac{520}{1000}$km

= 0.52km

(e) 450m into km

1m = $\frac{1}{1000}$km

450m = $\frac{450}{1000}$km

= 0.450km

(f) 4km 800m into m

1km = 1000m

4km 800m = 4 × 1000 + 800m

= 4000m + 800m = 4800m

(g)1m = 10dm

4m 9dm = 4 × 10dm + 9dm

= 40 dm + 9dm = 49dm

2. (a) 0.04kg into g

1kg = 1000g

0.04kg = 0.04 × 1000g

= 40g

(b) 0.50kg = 0.50 × 1000g

= 500g

(c) 2.15kg into g

1kg = 1000g

2.15kg = 2.15 × 1000g

= 2150g

(d) 4400g into kg

1g = $\frac{1}{1000}$kg

4400g = $\frac{4400}{1000}$kg

= 4.4kg

(e) 850g into kg

1g = $\frac{1}{1000}$kg

850g = $\frac{850}{1000}$kg

= 0.850kg

(f) 5kg 360g into g

1kg = 1000g

5kg 360g = 5 × 1000g + 360g

= 5000g + 360g

= 5360g

(g) 7g 95mg into mg

1g = 1000mg

7g 95mg = 7 × 1000mg + 95mg

= 7000mg + 95mg

= 7095mg

3. (a) 0.8*l* into m*l*

$1l = 1000ml$

$0.8l = 0.8 \times 1000ml$

$0.8l = 0.8 \times 1000ml$

$= 800ml$

(b) 2.17*l* into m*l*

$1l = 1000ml$

$2.17l = 2.17 \times 1000ml$

$= 2170ml$

(c) 2740m*l* into *l*

$1ml = \frac{1}{1000}l$

$2740ml = \frac{2740}{1000}l$

$= 2.740l$

(d) 5.45*l* into m*l*

$1l = 1000ml$

$5.45l - 5.45 \times 1000ml$

$= 5450ml$

(e) 950m*l* into *l*

$1ml = \frac{1}{1000}l$

$950ml = \frac{950}{1000}l$

$= 0.950l$

(f) 3*l* 155m*l* into m*l*

$1l = 1000ml$

$3l\ 155ml = 3 \times 1000ml + 155ml$

$3000 + 155ml$

$= 3155ml$

(g) 3k*l* 60*l* into *l*

$1kl = 1000l$

$3kl\ 60l = 3 \times 1000l + 60l$

$= 3000l + 60l$

$= 3060l$

4. (a) Capacity of one backet: 15kg 250g

Capacity of second backed: 8kg 750g

Capacity of both the basket: Capacity of first basket + Capacity of second basket

	kg		g		
	①	①	①		
	1	5	2	5	0
+	0	8	7	5	0
	2	4	0	0	0

= 15kg 250g + 8kg 750g

= 24kg

Answer: Both the baskets can hod 24kg of grains.

(b) Quantity of 1 bottle: 550m*l*

Quantity of 30 such bottles: Quantity of 1 bottle × 30

			①		
			5	5	0
×				3	0
			0	0	0
+	1	6	5	0	×
	1	6	5	0	0

= 560m*l* × 30

= 16500m*l*

Answer: Quantity of 30 such bottles is 16500m*l*.

Multiple Choice Question

1. (a) Milimetre

2. (c) Killolitre

3. (a) Divide

4. (b) Multiply

Skills Check

1. (a) 1 litre = 1000m*l*

1000m*l* ÷ 200m*l* = 5

Answer: five 200ml measure of water can fill an 1 litre can.

(b) $1l = 1000ml$

$4l = 4 \times 1000ml$

$= 4000ml$

$4000ml \div 200ml = 20$

Answer: 20, 200m*l* measure of water can fill a 4 litre drum.

2. Capacity of tank A = 5 times capacity of tank B

Let Capacity of tank B be x

Capacity of tank A = 5x

Water in both tank A and Tank B = x + 5x

= 6x

If both of them will contain 45*l* of water each, then total water = 90*l*

$$x + 5x = 90$$

$$6x = 90$$

$$x = \frac{90}{6}$$

$$x = 15$$

Water in tank B = x = 15 litres

Water in tank A = 5 × 15 Litres

= 75

So, Quantity of water to be transferred from tank A to tank B so that each tank contains 45 litres = 75l – 45*l*

= 30 litres

Answer: 30 litres of water should be transferred

3. Length of red portion: 1.8m

Length of white portion: 3 times red portion

= 3 × 1.8m

= 5.4m

Total length: Length of red portion + Length of white portion

= 1.8m + 5.4m

= 7.2m

Answer: The pole is 7.2m long

10 Perimeter and Area

Get Started

Length of society: 100m

Breadth of society: 80m

Distance Rohit cover = Perimeter of rectangle

= 2 (Length + Breadth) = 2(100 + 80)

= 2(180) = 360m

Number of days in a weet: 7

Distance Covered in a week: Distance covered in 1 day × 7

= 360m × 7

= 2520m

Exercise 10.1

1. (a) Perimeter of the object = Perimeter of retangle oppssite sides are equal

= 2(Length + Breadth)

= 2(8 + 12)

= 2 × 20cm

= 40cm

(b) Perimeter of object = Perimeter of square (All four sides are equal)

= 4 × Side = 4 × 80cm

= 320cm

(c) Perimeter of figure = Perimeter of rectangle

= 2(Length + Breadth) [Opposties sides are equal]

= 2(136cm + 164cm)

= 2(300cm)cm

= 600cm

(d) Perimeter of figure = Perimeter of triangle

= Sum of all three sides

= 10cm + 10cm + 12cm

= 32cm

(e) Perimeter of figure = Perimeter of rectangle

= 2(Length + Breadth) (Opposite side are equal)

= 2(80cm + 164cm) = 2(244cm)

= 488cm

(f) Perimeter of figure = Perimeter of square

= 4 × side

= 4 × 30cm

= 120cm

2. (a)

	Rectangle		
	Length	**Breadth**	**Perimeter [2 (Length + Breadth)]**
(i)	8cm	6cm	= [8cm + 6cm] = 2[14cm] = 28cm
(ii)	9cm	8cm	2[9cm + 8cm] = 2[17cm] = 34cm
(iii)	7cm	Perimeter = 2(Length + Breadth) 24 = 2(7 + Breadth) 24 ÷ 2 = 7 + Breadth B = 12 – 7 = 5 5cm	24
(iv)	Perimeter = 2(Length + Breadth 60cm = 2(Length + 12) 60cm ÷ 2 = Length + 12cm 20cm = Length + 12cm = 30 – 12 = Length = 18cm	12cm	60cm

(b) Square [Perimeter = 4 × side]

Side = Perimeter ÷ 4

Square		
	Side	**Perimeter**
(i)	8cm	4 × 8cm = 32cm
(ii)	40 ÷ 4 = 10cm	40cm
(iii)	$7\frac{1}{2} = \frac{2 \times 7 + 1}{2}$ $= \frac{14 + 1}{2} = \frac{15}{2} =$ 7.5cm	4 × 7.5cm = 30.0cm
(iv)	90m ÷ 4 = 22.5	90m
(v)	12.5cm	4 × 12.5cm = 50cm
(vi)	20m ÷ 4 = 5m	20m

3. Perimeter of triangle: Sum of all three sides

(a) Perimeter: 8cm + 7cm + 4cm

Perimeter: 19cm

(b) Perimeter: 7.5cm + 6.3cm + 5.1cm

= 18.9cm

(c) Perimter: 4.9cm + 5.2cm + 8.1cm

Perimeter: 4.9cm + 5.2cm + 8.1cm

Perimeter: 18.2cm

(d) Perimter: 6cm + 7.2cm + 8.5cm

= 21.7cm

4. Length of room: 10m

Breadth of room: 8.2m

Perimeter of room: 2(length + Breadth)

= 2(10m + 8.2m)

2(18.2)m

= 36.4m

5. Perimeter of rectangular plot: 2(Length + Breadth)

= 2(80m + 60m) = 2(140m) = 280m

Perimeter of Square plot: 4 × sides

= 4 × 100m = 400m

400m > 280m

	Length	**Breadth**	**Perimeter [2 (Length + Breadth)]**
(v)	$9\frac{1}{2}$cm $9\frac{1}{2}$cm $9\frac{1}{2}$cm = $\frac{2 \times 9\text{cm} + 1\text{cm}}{2}$ $\frac{18\text{cm} + 1\text{cm}}{2} = \frac{19}{2}$cm = 9.5cm	$5\frac{1}{2}$cm $5\frac{1}{2}$cm = $\frac{2 \times 5\text{cm} + 1\text{cm}}{2}$ $\frac{10\text{cm} + 1\text{cm}}{2} = \frac{11}{2}$cm = 5.5cm	Perimeter = 2(Length + Breadth) = 2 (9.5cm + 5.5cm) = (15cm) = 30cm
(vi)	5.5cm	Perimeter 2[Length + Breadth] 21cm = 2[5.5cm + Breadth] $\frac{21}{2}$cm ÷ 5.5cm + Breadth 10.5cm = 5.5cm + Breadth Breadth = 10.5 - 5.5cm Breadth = 5cm	21cm

Perimeter of square > Perimeter of rectangle

Difference between perimeter of square and Perimeter of rectangle: 400m – 280m

= 120m

Answer: Perimter of square plot is more than perimeter of rectangular plot by 120m.

6. Length of rectangular plot: 85m

Breadth of rectangular plot: 60m

Perimeter of rectangular plot: 2(Length + Breadth)

= 2(85m + 60m) = 2(145)m

= 290m

Cost of Constructing 1m of wall: ₹125

Cost of constructing 290m of wall: 290m × ₹125

= ₹36250

$$\begin{array}{cccccc} & & & \textcircled{1} & & \\ & & \textcircled{2} & \textcircled{4} & & \\ & & 1 & 2 & 5 & \\ \times & & 2 & 9 & 0 & \\ \hline & & 0 & 0 & 0 & \\ & 1 & 1 & 2 & 5 & \times \\ + & 2 & 5 & 0 & \times & \times \\ \hline & 3 & 6 & 2 & 5 & 0 \end{array}$$

Answer: Total cost of constructing wall is ₹36250.

7. Length of side of square field: 102m

Number of rounds Ravi ran: 4

Perimeter of square field = 4 × side

= 4 × side

= 4 × 102m = 408m

$$\begin{array}{cccc} & 1 & 0 & 2 \\ \times & & & 4 \\ \hline & 4 & 0 & 8 \end{array}$$

Total distance Ravi ran: Perimeter of square field × Number round Ravi ran

= 4 × 408m

= 1632m

$$\begin{array}{cccc} & & \textcircled{3} & \\ & 4 & 0 & 8 \\ \times & & & 4 \\ \hline 1 & 6 & 3 & 2 \end{array}$$

Answer: Ravi covered a distance of 1632m.

8. Total length of fence around a square field = Perimeter of square field

308 = 4 × Side

Side = $\frac{308}{4}$

Side = 77m [All sides of square are equal]

$$\begin{array}{r} 77 \\ 4\overline{)308} \\ -\,28\downarrow \\ \hline 28 \\ -\,28 \\ \hline 0 \end{array}$$

Answer: Length of each square field is 77m

9. Side 1 = Side 2[isoscles triangles]

side 1 = 5.9m, Side 3 = 7.6cm

Side 2 = 5.9m

Perimeter of isoscles triangles: Sum of length of all three sides = 5.9m + 5.9m + 7.6m

= 11.8m + 7.6m = 19.4m

Answer: Perimeter of isoscles triangle is 19.4m

10 Side: 8.9cm [All sides of an equilaterial traingle are equal]

Perimeter of equilteral traingle = Sum of all three sides

= 8.9cm + 8.9cm + 8.9cm

Answer: Perimeter of equailateral triangle is 26.7m

Exercise 10.2

1. (a) Rectangle is covered with 3 squares each measuring 1 sq.cm hence its area is 3 sq cm.

(b) Rectangle is covered with 6 squares each measuring 1 sq.cm hence its area is 6sq cm.

(c) Square is covered with 9 squares each measuring 1 sq.cm hence its area is 9sq cm.

(d) Rectangle is covered with 15 squares each measuring 1 sq.cm hence its area is 15sq cm.

2. (a) Area of figure = Area of square [All Sides are equal]

Side × Side = 2.5cm × 2.5cm

$$\begin{array}{r} \overset{1}{} \\ \overset{2}{} \\ 2.5 \\ \times\ 2.5 \\ \hline 125 \\ +\ 50\times \\ \hline 6.25 \end{array}$$

[2 decimal places]

= 6.25cm^2

(b) Area of figure = Area of rectangle [Opposite are equal]

$$\begin{array}{r} \overset{1}{} \overset{2}{} \\ \overset{1}{} \overset{2}{} \\ 124 \\ \times\ 155 \\ \hline \overset{1}{}620 \\ 620\times \\ +\ 124\times\times \\ \hline 19220 \end{array}$$

= Length × Breath = 124cm × 155cm

= 19220cm^2

(c) Area of figure = Area of square

= Side × Side

= 18cm × 18cm

= 324cm^2

$$\begin{array}{r} \overset{1}{} \overset{6}{} \\ 18 \\ \times\ 18 \\ \hline \overset{1}{} \\ 144 \\ +\ 18\times \\ \hline 324 \end{array}$$

(d) Area of figure = Area of rectangle

= Length × Breath

= 90cm × 105cm

= 9450cm^2

$$\begin{array}{r} \overset{4}{} \\ 105 \\ \times\ 90 \\ \hline 000 \\ +\ 945\times \\ \hline 9450 \end{array}$$

(e) Area of figure = Area of square

= Side × Side

$$\begin{array}{r} 32 \\ \times\ 32 \\ \hline \overset{2}{} \\ 64 \\ +\ 96\times \\ \hline 1024 \end{array}$$

= 32cm × 32cm

= 1024cm^2

(f) Area of figure = Area of rectangle
= Length × Breadth

$$\begin{array}{r} 60 \\ \times\ 45 \\ \hline 300 \\ +\ 240\times \\ \hline 2700 \end{array}$$

= 60cm × 45cm
= 2700cm^2

3. (a) Area of rectangle: Length × Breadth
= 20cm × 12cm = 240cm^2

(b) Area of rectangle: Length × Breadth
= 11.5cm × 10cm = 115cm

(c) Area of rectangle: Length × Breadth
= 1m 32cm × 80cm [1cm = $\frac{1}{100}$]
[1m 32cm = 1m + $\frac{32}{100}$m = 1m + 0.32m = 1.32m]
= 1.32m × 80m
= 105.6m^2

4. (a) Area of square: Side × Side
= 3.5cm × 3.5cm
= 12.25cm^2

$$\begin{array}{r} \overset{1}{} \\ \overset{2}{} \\ 3.5 \\ \times\ 3.5 \\ \hline \overset{2}{} \\ 175\times \\ +\ 105\times \\ \hline 12.25 \end{array}$$

[2-decimal places]

(b) Area of square: Side × Side
= 40cm × 40cm
= 1600cm^2

(c) $8\frac{1}{2} = \frac{2\times 8+1}{2} = \frac{16+1}{2} = \frac{17}{2}$m = 8.5m^2
Area of square: Side × Side
= 8.5m × 8.5m
= 72.25m^2

$$\begin{array}{r} \overset{4}{} \\ \overset{2}{} \\ 8.5 \\ \times\ 8.5 \\ \hline \overset{1}{} \\ 425 \\ +\ 680\times \\ \hline 7225 \end{array}$$

5. Area of rectangular plot: 2550sq.m
Length = 75m
Area of rectangulr plot = Length × Breadth
2550m^2 = 75m × Breadth
Breadth = $\frac{2550}{75}$ = 34m

$$\begin{array}{r} 34 \\ 75\overline{)2550} \\ -\ 225\downarrow \\ \hline 300 \\ -\ 300 \\ \hline 0 \end{array}$$

Answer: Breadth of rectangular plot is 34m.

6. Length of room: 650cm
Breadth of room: 450cm
Area of room = Length × Breadth
= 650cm × 450cm
= 292500cm^2

$$\begin{array}{r} \overset{2}{} \\ \overset{2}{} \\ 650 \\ \times\ 450 \\ \hline 000 \\ 3250\times \\ +\ 2600\times\times \\ \hline 292500 \end{array}$$

Cost of flooring at the rate of sq cm: 30 paise
Cost of flooring at the rateof 292500sqcm:
292500 × 30 paise= 8775000 paise
1 paise = ₹$\frac{1}{100}$

8775000 paise = ₹$\frac{775000}{100}$

= ₹87750

Answer: Cost of flooring is ₹87750

7.

Rectangle			
	Length (cm)	**Breadth (cm)**	**Area (sq.cm)**
(i)	8.5	Area = Length × Breadth $51cm^2 = 8.5 \times 8$ Breadth = $\frac{51cm^2}{8.5cm}$ Beadth = 6cm	$51cm^2$
(ii)	Area = Length × Breadth $345cm^2$ = Length × 15cm Length = $\frac{345cm^2}{15cm}$ Length = 23cm	15	$345cm^2$
(iii)	9cm	4.5cm	Area = Length × Breadth = 9cm × 4.5cm $= 40.5cm^2$
(iv)	Area = Length × Breadth 1600cm = Length × 32cm Length = $\frac{1600cm^2}{32cm}$ Length = 50cm	32	$1600cm^2$
(v)	Area = Length × Breadth $112cm^2$ = Length × 4cm Length = $\frac{112cm^2}{4cm}$ Length = 28cm	4	$112cm^2$
(vi)	11	Area = Length × Breadth 187cm2 = 11cm × Breadth $\frac{187cm^2}{11cm}$ Breadth = 17cm	$187cm^2$

(b)

Square [Area = Side × Side]		
	Side (cm)	**Area (sq.cm)**
(i)	6cm	$36cm^2$
(ii)	3.5cm	$3.5cm \times 3.5cm = 12.25cm^2$
(iii)	$4\frac{1}{2}cm = \frac{2 \times 4 + 1}{4} = \frac{8 + 1}{4} = \frac{9}{2}cm = 4.5cm$	$4.5cm \times 4.5cm = 20.25cm^2$
(iv)	$2\frac{1}{4}cm = \frac{4 \times 2 + 1}{4} = \frac{8 + 1}{4} = \frac{9}{4}cm = 2.25cm$	$2.25cm \times 2.25cm = 5.0625cm^2$
(v)	11cm	$11cm \times 11cm = 121cm^2$
(vi)	13cm	$13cm \times 13cm = 169cm^2$

8. Area of block = Area of rectangle
= Length × Breath = 25cm × 12cm
= $300cm^2$

$$\begin{array}{r} 2\ 5 \\ \times\ 1\ 2 \\ \hline (1)\ \ \\ \ 5\ 0 \\ +\ 2\ 5\ \times \\ \hline 3\ 0\ 0 \end{array}$$

Area of path = Area of rectangle
= Length × Breadth = 12.5m × 4.8m
= (1250cm × 480cm)
(1m = 100cm)

$$\begin{array}{r} (1)(2)\ \ \\ (2)(4)\ \ \\ 1\ 2\ 5\ 0 \\ \times\ \ 4\ 8\ 0 \\ \hline 0\ 0\ 0\ 0 \\ 1\ 0\ 0\ 0\ 0\ \times \\ +\ 5\ 0\ 0\ 0\ \times\ \times \\ \hline 6\ 0\ 0\ 0\ 0\ 0 \end{array}$$

Number of block required to the path

$\frac{\text{Area of path}}{\text{Area of block}} = \frac{600000}{300}$

= 2000

Answer: 2000 blocks are required to lay the path.

9. Area of room = Area of rectangle

= Length × Breath = 4.50 × 6m

= 27m²

Cost of painting per sq.m = ₹10

Cost of painting 27m = ₹(10 × 27)

= ₹270

	4	. 5	0
×			6
2	7	. 0	0

Hence cost of painting the walls is ₹270.

10. Perimeter of rectangle = 2(Length + Breadth)

88m = 2[24m + Breadth]

88m = 48m + Breadth

2 Breadth = 88 – 48m

2 Breadth = 40m

Breadth = 20m

Area = Length × Breadth

= 24m × 20m

= 480m²

		2	4
×		2	0
		0	0
+	4	8	×
	4	8	0

Answer: Area of rectangle is 480m².

11. Perimeter of sqaure = 4 × Side

120m = 4 × Side

Side = $\frac{120}{4}$m

Side = 30m

Area = Side × Side

= 30m × 30m

= 900m²

Answer: Area of square is 900m².

Exercise 10.3

1. (a) Area of rectangle = Number of squares measuring 1 sq unit each.

= 6sq Units

Area of triangle is half the area of reactangle as the diagonal divides the rectangle in two equal halves.

$_3\cancel{6} \times \frac{1}{\cancel{2}_1}$ = 3 sq units

(b) Area of rectangle = 12 sq units

Area of rectangle = $_6\cancel{12} \times \frac{1}{\cancel{2}_1}$ = 6 sq.units

(c) Area of square = Number of squares measuring 1 sq units each.

= 9cm²

Area of triangle is half the area of square as the diagonal divides the square in two equal halves = $9 \times \frac{1}{2} = 4.5\text{cm}^2$

(d) Area of rectangle = Number of squares measuring 1 sq unit each = 20 sq.units

Area of triangle is half the area of square as the diagonal divides the square in two equal halves.

$= 20 \times \frac{1}{2} = 10\text{cm}^2$

2. Area of figure = Number of square measuring 1sq.unit each

Area (in sq.units)	15	7.5	18	9	6
Shape	E or C	F	D	A	B

3. Area of triangle = Number of blocks covered

(a) 6 units (b) 9 units

(c) 9 units (d) 17 units

(e) 9 units (f) 14 units

(g) 9 units

Exercise 10.4

To be done by studends

Learning Updates

1. Perimeter of trinagle: Sum of all the sides

(a) Perimeter of trinagle: 9cm + 7cm + 8cm

= 24cm

(b) Perimeter of triangle: 8.6cm + 6.5cm + 5.3cm

= 20.4cm

(c) Perimeter of triangle = 7cm + 8.3cm + 9.5cm

= 24.8cm

2. Area of rectangle = Length × Breadth
= 46cm × 8.5cm
= 391cm^2

$$\begin{array}{r} \textcircled{4} \\ \textcircled{3} \\ 46 \\ \times\ 8.5 \\ \hline \textcircled{1} \\ 23 \\ +\ 3\ 6\ 8\ \times \\ \hline 3\ 9\ 1.\ 0 \end{array}$$

3. (a) Area of rectnagle = Length × Breadth
104 sq cm = Length × 8cm
Length = 104sqm ÷ 8cm
Length = 13cm

$$\begin{array}{r} 13 \\ 8\overline{)104} \\ -\ 8\downarrow \\ \hline 24 \\ -\ 24 \\ \hline 0 \end{array}$$

(b) Area of reactnagle = Length × Breadth
102sq.cm = Length × 8.5cm
Length = $\frac{102}{8.5}$
Length = 12cm

4. (a) Area of rectangle = Length × Breadth
288 sq.cm = 16cm × Breadth
Breadth = $\frac{288}{16}$
Breadth = 18cm

$$\begin{array}{r} 18 \\ 16\overline{)288} \\ -\ 16\downarrow \\ \hline 128 \\ -\ 128 \\ \hline 0 \end{array}$$

(b) Area of rectangle = Length × Breadth
52 sq.cm = 8cm × Breadth
Breadth = $\frac{52}{8}$
Breadth = 6.5cm

$$\begin{array}{r} 6.5 \\ 8\overline{)52} \\ -\ 48 \\ \hline 40 \\ -\ 40 \\ \hline 0 \end{array}$$

5. Length of park: 150m
Breadth of park: 100m
Perimeter of park: 2[Length + Breadth]
= 2[150m + 100m]
= 2[250m] = 500m
Number of times Mayank jogged around the park: 5
Total distance covered: Perimeter of park × Number of times Mayank jogged around the park
= 500m × 5
= 2500m
Answer: Mayank covered a total distance of 2500m.

6. Carpet A
Length: 16m, Bredth 12.5m
Area = Length × Breadth
= 16m × 12.5m
= 200m^2

$$\begin{array}{r} \textcircled{4} \\ \textcircled{3} \\ 1\ 2.\ 5 \\ \times\ 1\ 6 \\ \hline \textcircled{1}\textcircled{1} \\ 7\ 5\ 0 \\ +\ 1\ 2\ 5\ \times \\ \hline 2\ 0\ 0\ 0 \end{array}$$

= 200.0 [1-Decimal place]
[1 Decimal place]
Carpet B

Length = 15, Breadth = 13.8

Area = Length × Breadth

= 15m × 13.8m

= 207m^2

$$\begin{array}{r} \overset{1}{} \overset{4}{} \\ 1\,3.8 \\ \times \quad 1\,5 \\ \hline \overset{1}{} \overset{1}{} \\ 7\,9\,0 \\ +\,1\,3\,8\,\times \\ \hline 2\,0\,7\,0 \end{array}$$

= 207.0

[1 Decimal place]

200m^2 < 207m^2

Carpet A < Carpet B

Answer: Carpet B is bigger than carpet A.

Multiple choice Question

1. (b) The sum of its sides

2. (a) Circle [As circle is not bounded by line segments]

3. Perimeter of isoscles triangle = Sum of its all sides

= 5.7cm + 5.7cm + 6.9cm

= 18.3

$$\begin{array}{r} \overset{2}{} \\ 5.7 \\ 5.7 \\ \times \quad 6.9 \\ \hline 1\,8.3 \end{array}$$

(c) 18.3cm

4. Area of rectangle with length 18m and Breadth 8

Length × Breadth = 18m × 8m

= 144m^2

$$\begin{array}{r} \overset{6}{} \\ 1\,8 \\ \times \quad 8 \\ \hline 1\,4\,4 \end{array}$$

Area of rectangle with length 12m and Breadth 14m

Length × Breadth = 12m × 14m

= 168m^2

$$\begin{array}{r} 1\,2 \\ \times \quad 1\,4 \\ \hline 4\,8 \\ +\,1\,2\,\times \\ \hline 1\,6\,8 \end{array}$$

Area of square with length of each side 13m

Side × Side = 13m × 13m

= 169m^2

144m^2 < 168m^2 < 169m^2

(c) A square of length 13m.

Skills Check

1. Perimeter of rectangle = 24 cm

2(Length + Breadth) = 24cm

Length + Breadth = 24 ÷ 2

Length + Breadth = 12

Length	Breadth
1	11
2	10
3	9
4	8
5	7
6	6

[The sum of length and breadth should be 12]

Six rectangles can be made with a perimeter of 24cm.

(1, 11), (2, 10), (3, 9), (4, 8), (5, 7), (6, 6)

2. Area of rectangle = 36sq.cm

Length × Breadth = 36sq.cm

[The Product of to length and Breadth should be 36 sq.cm]

Length	Breadth
1	36
2	18
3	12
4	9

Four rectangles can be made with an area of 36 sqcm: (1, 36), (2, 18), (3, 12), (4, 9)

11 Volume and Nets

Exercise 11.1

1. (a) Volume of solid = Number of Cubes = 8

(b) Volume of solid = Number of Cubes = 7

(c) Volume of solid = Number of Cubes = 9

(d) Volume of solid = Number of Cubes = 7

(e) Volume of solid = Number of Cubes = 8

(f) Volume of solid = Number of Cubes = 24

2. (a) Volume of solid = Number of Cubes each measuring 1cu.cm

= 12 cu.cm

(b) Volume of solid = Number of cubes each measuring 13cu.cm

(c) Volume of solid = Number of cubes each measuring 11cu.cm

(d) Volume of solid = Number of cubes each measuring 7cu.cm

(e) Volume of solid = Number of cubes each measuring 12cu.cm

(f) Volume of solid = Number of cubes each measuring 9cu.cm

Exercise 11.2

1. (a) l = 12cm, b = 7cm, h = 6cm

V = $l \times b \times h$

V = (12 × 7 × 6)

V = 504cm^3

(b) l = 12.5m, b = 7.8m, h = 4.5cm

V = $l \times b \times h$

V = (12.5 × 7.8 × 4.5)

V = 438.7cm^3

(c) $l = 4\frac{1}{2}$m, $b = 2\frac{1}{2}$, h = $1\frac{1}{2}$m

$l = \frac{2 \times 4 + 1}{2}, b = \frac{2 \times 2 + 1}{2}, h = \frac{2 \times 1 + 1}{2}$

$l = \frac{8 + 1}{2}, b = \frac{4 + 1}{2}, h = \frac{2 + 1}{2}$

$l = \frac{9}{2}, b = \frac{5}{2}, h = \frac{3}{2}$

l = 4.5, b = 2.5, h = 1.5

V = $l \times b \times h$

V = (4.5 × 2.5 × 1.5)m

V = 16.875m^3 (3 – Decimal place)

2. Volume of cube = Side × Side × Side

(a) Side = 17cm

B = (17 × 17 × 17)cm

= 4913cm^3

(b) Side = 10.5cm

V = (10.5 × 10.5 × 10.5)cm

= 1157.625cm^3

(c) $3\frac{1}{4}$m = $\frac{4 \times 3 + 1}{4} = \frac{12 + 1}{2}$m = $\frac{13}{4}$m = 3.25m

V = (3.25 × 3.25 × 3.25)m

= 34.328125m^3

(d) Side = 1m 5cm [1cm = $\frac{1}{100}$m]

= 1m + $\frac{5}{100}$ = 1m + 0.05m

= 1.05m

Volume = (1.05 × 1.05 × 1.05)m

= 1.157625m^3

3. Dimensions of brick: l = 21.6cm, b = 9.6cm, h = 6.4cm

Volume of brick = Volume of couboid

= $l \times b \times h$ = (21.6 × 9.6 × 6.4)cm

= 1327.104cm^3

4. Dimensions of tank: l = 12.4m, b = 7.8m, h = 6m

Amount of water that can be filled in tank = Volume of tank

= $l \times b \times h$

= (12.4 × 7.8 × 6)m

= 580.32m^3

5. Edge of cubical tank = 3.2m

Volume of cubical tank = Volume of cube

= (3.2 × 3.2 × 3.2)m

= 32.768m^3

6. Dimensions of brick: Length = 25, Breadth = 16cm, Heigth = 7.5cm

Volume of brick = Volume of cuboid

Volume of brick = (25 × 16 × 7.5)cm

= 3000cm^3

Dimensions of Balcony: Length = 5cm, Breadth = 3m, Heigth = 80cm

Length = 5m = (5 × 100)cm = 500cm [1m = 100cm]

Breadth = 3m = (3 × 100)cm = 300cm [1m = 100cm]

Volume of Balcony = Volume of cuboid

Volume of Balcony = Length × Breadth × Height

= (500 × 300 × 80)cm

= 12000000cm^3

Number of bricks required to build the balcony

$$= \frac{\text{Volume of balcony}}{\text{Volume of brick}}$$

$$= \frac{12000000}{3000} = 4000 \text{ bricks}$$

Answer: 4000 bricks are required to build the balcony.

7. Dimension of box: Length = 10cm, Breadth = 6cm, Height = 1.5cm

Volume of box = Length × Breadth × Height

= (10 × 6 × 1.5)cm

= 90cm^3

Number of boxes = 12

Volume of 12 similar boxes = Volume 1 box × 12

(90 × 12)cm^3

= 1080cm^3

Answer: If 12 similar boxes are kept one upon the other then the volume of boxes would be 1080cm^3.

Exericse 11.3

To be done by Students

Exercise 11.4

To be done by Students

Learning Updates

1. (a) Volume of figure = Number of cubes in the figure

= 10 cu

(b) Volume of figure = Number of cubes in the figure

= 36 cu

(c) Volume of figure = Number of cubes in the figure

= 30 cu

(d) Volume of figure = Number of cubes in the figure

= 45 cu

2. (a) Volume of figure = Number of cubes in the figure each measuring 8cm^3

Volume of cube = (2 × 2 × 2)cm^3

= 8cm^3

8cm^3 × 30

= 240cm^3

(b) Volume of figure = Number of cubes in the figure each measuring 8cm^3

36 cube × 8cm^3

= 288cm^3

(c) Volume of figure = Number of cubes in the figure each measuring 8cm^3

20cube × 8cm^3

= 160cm^3

(d) Volume of figure = Number of cubes in the figure each measuring 8cm^3

17cube × 8cm^3

= 136cm^3

3. (a) Volume of cuboid = l × b × h

= (5 × 3 × 4)cm

= 60cm^3

(b) Volume of Cuboid = l × b × h

= (5 × 2 × 3)cm

= 30 cm^3

(c) All Dimenstions are equal, hence this solid is a cube.

Volume of cube = (4 × 4 × 4)cm

= 64cm^3

4. (a) L = 15cm, B = 6cm, h = 8.5cm

V = L × B × H

V = (15 × 6 × 8.5)cm

V = 765cm^3

(b) 18L = 5cm, B = 2.5cm, H = 1cm

V = L × B × H

V = (5 × 2.5 × 1)cm

V = 12.5cm^3

(c) Length = 12cm, Breadth = 12, Height = 12

Volume = L × B × H

= (12 × 12 × 12)cm

= 1728cm^3

5. (b) and (d)

6. (a) $4\frac{1}{2}$cm = $\frac{2 \times 4 + 1}{2}$cm

= $\frac{8 + 1}{2}$cm = $\frac{9}{2}$cm = 4.5cm

Volume of cube = [Side × Side × Side]

= (4.5 × 4.5 × 4.5)cm

= 91.125cm^3

(b) 18mm

Volume of cube = [Side × Side × Side]

(18 × 18 × 18)mm

= 5832mm^3

(c) 7.2cm

Volume of cube = [Side × Side × Side]

(7.2 × 7.2 × 7.2)cm^3 = 373.248cm^3

(d) 4cm 5mm [1mm = $\frac{1}{10}$cm]

45cm + $\frac{5}{10}$cm

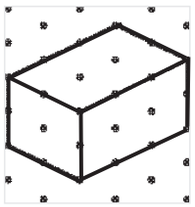
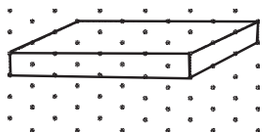
= 4cm + 0.5cm

= 4.5cm

Volume of cube = [Side × Side × Side]

= (4.5 × 4.5 × 4.5)

= 8303.765cm^3

7. (a)  (b) 

8.

S.no	Length	Breadth	Height	Volume
(a)	3.5cm	5cm	2m	35 cu m
(b)	5cm	4cm	7cm	140cu. cm
(c)	12cm	5cm	7cm	420 cu. cm
(d)	1200cm	9mm	10mm	1080 cu.cm

(a) Volume = l × b × h

V = (3.5 × 5 × 2)m

V = (3.5 × 10)m

V = 35m^3

(b) Height

V = l × b × h

h = $\frac{V}{l \times b}$

h = $\frac{140}{5 \times 4}$ = $\frac{140}{20}$ = 7cm

(c) Breadth

V = l × b × h

b = $\frac{V}{l \times h}$

b = $\frac{420}{12 \times 7}$ = $\frac{420}{84}$ = 5cm

(d) Length

V = l × b × h

l = $\frac{V}{b \times h}$

l = $\frac{1080}{0.9 \times 10}$ = 1200cm

[9mm = $\frac{9}{10}$cm [1mm = $\frac{1}{10}$cm] = 0.9cm]

[10mm = $\frac{10}{10}$cm [1mm = $\frac{1}{10}$cm] = 1cm]

9. Length = 6.5m, Breadth = 24m, Height = 1.5m

Volume = Length × Breadth × Height

= (6.5 × 2.4 × 1.5)m

= $23.4m^3$

10. Dimensions of Box P = (10 × 6 × 4)cm

Dimensions of Box Q = (6 × 6 × 7)cm

Volume of Box Q = (6 × 6 × 7)cm

= $252cm^3$

Volume of Box P (10 × 6 × 4)cm

= $240cm^3$

Volume of Box Q > Volume of Box P

(252 > 240)

Difference between then = 252 – 240 = $12cm^3$

Hence, Volume of box Q is Greater than Box P by 12 cu.cm

Multiple choice Questions

1. (b) 1cm, as Volume of cube = Side × Side × Side

= (1 × 1 × 1)cm = 1cu.cm

2. Volume of cube = Side × Side × Side (Edge = 6cm)

= (6 × 6 × 6) = $216cm^3$

3. Side of cube = 2cm

Volume of cube = Side × Side × Side

= $8cm^3$

Number of cubes joinded together = 3

Volume of cubes joinded together = Number of cubes × Volume of cube

= $8cm^3$ × 3

= $24cm^3$

Answer: (c) $24cm^3$

4. (b) Perimeter

5. (c) 1000cu.cm

Skills Check

1. Dimension of cuboid: Length = 4, Breadth = 4, Height = 2

Volume of cuboid: L × B × H

= (4 × 4 × 2) = 32 cubes

Volume of soild = Number of cubes

Volume of solid = 20 cubes

Number of more unit cubes to be added = 32 cubes – 20 cubes

= 12 cubes

Answer: 12 more cubes are to be added to make a cuboid of dimensions 4 × 4 × 2

2. 20 cubes

12 Time

Get Started

1. (a) a.m

(b) p.m

(c) a.m

(d) p.m

2. Time period from 7:00am to 12:00

= 12:00 noon – 7:00cm

= 5 hours

Now, Time period from 12:00 to 2:00pm

= 12:00 noon – 2:00pm

= 2 hours

Total time for which Tina is in school = 5 hours + 2 hours

= 7 hours

∴ Tina spend 7 hours in school.

Exercise 12.1

1. (a) 0540 hours

Answer: 05:40am

= The number formed by the first two digits from the left of a 24-hours clock time is less than 12, then, it shows the number of hours before noon, and therefore a.m will be use with it.

(b) 0120 hours = 01:20am

The number formed by the first two digits from the left of a 24-hours clock time is less than 12, then, it shows the number of hours before noon, and therefore a.m will be use with it.

(c) 1229 hours

= 12: 29pm

If the number formed by the first 2 digits form the left of a 24-hours clock time is 12, then it is 12pm.

(d) 1640 housrs = 4:40pm

If the number formed by the first two digits from the left of a 24-hours clock time is 13 or more then, the difference between that number and 12 gives the number of hours and pm is to be used with it.

(e) 1525 hours = 3:25pm

If the number formed by the first two digits from the left of a 24-hours clock time is 13 or more then, the difference between that number and 12 gives the number of hours and pm is to be used with it.

(f) 000 hours = 12 mid-night

If the number formed by the first two digits from the left of a 24-hours clock time is 13 or more then, the difference between that number and 12 gives the number of hours and pm is to be used with it.

(g) 1200 hours = 12 noon

If this number formed by the left of a 24-hours clock time is 12, then it is 12 noon.

(h) 2000 hours = 8:00pm

If the number formed by the first two digits from the left of a 24-hours clock time is 123or more then, the difference between that number and 12 gives the number of hours and pm is to be used with it.

2. (a) 6:05am = 0605 hours

For the time from 1:00 am to 12:59pm, do not change the number. the time is written just without am or pm.

(b) 10.24 am = 1024 hours

For the time from 1:00 am to 12:59pm, do not change the number. the time is written just without am or pm.

(c) 12:06am = 0006 hours

For the time from 12 midnight to 12:29am, subtract 12 hours and the time is written without am.

(d) 12: 15pm = 1215 hours

For the time from 1:00am to 12:59pm, do not change the number. the time is written just without am or pm.

(e) 4: 57am = 0457 hours

For the time from 1:00 am to 12:59pm, do not change the number. the time is written just without am or pm.

(f) 12:00am = 0000 hours

For the time from 12 midnight to 12: 59am, 12 hours will be subtracted and the time will be written without am.

(g) 1:40am = 0140 hours

For the time from 1:00 am to 12:59pm, do not change the number. the time is written just without am or pm.

(h) 9:40pm: 2140 hours

[For the time from 1:00pm to 11:59pm add 12 hours and write the time without pm.]

3. (a) 1620 hours = 4.20pm

Rajdani express have depaded from kanpur at 1620 hours which when converted into 12 hour clock time is 4:20pm

∴ The number formed by the first 2 digit from the left of a 24 hours clock is more than 13 which is 16 difference between that number and 12 gives the number of hours and pm is used with it.

Difference between the number and 12

∴ = 16 – 12 = 4:20pm

(b) 0048 = 12:48am

The first 2 digits is less than 12 so am is to be used.

(c) 1540 = 3:40pm

∴ The number formed by the first 2 digit from the left of a 24 hours clock is more than 13 which is 16 difference between that number and 12 gives the number of hours and pm is used with it.

Difference between the number and 12

∴ 15 – 12 = 3

= 3:40pm

(d) 0800 = 8:00am

The first 2 digits is less than 12 so am is to be used.

Exercise 12.2

1. (a) 8 days 19 hours = 8 days + 19 hours

(∴ 1 day = 24 hours) = (8 × 24)hours + 19 hours

= 192 hours + 19 hous = 211 hours

(b) 12 days 6 hours = 12 days + 6 hours

= (12 × 24) hours + 6 hours (∴ 1day = 24 hours)

= 288 hours + 6 hours = 294 hours

2. (a) 13 hours 48 minutes = 13 hours + 48 minutes = (13 × 60)min + 48

= 780min + 48min = 828min

(b) 3days 12 hours 35 minutes = 3 days + 12 hours + 35 min

(Since 1 day = 24 hours) = (3 × 24) hours + 12 hours + 35 min

= (72 + 12) hours + 35 minutes

= 84 hours + 35 minutes

= (84 × 60) minutes + 35 minutes (Since, 1 hours = 60 minutes)

= (5040 + 35) minutes

= 5075 minutes

3. (a) 12 min 54 second = 1 min = 60 second

= (12 × 60)sec + 65 sec

= 720 sec + 54 sec

= 774 sec

(b) 3 hours 25 min 16 sec = 3 hours + 25 min + 16 sec

= (3 × 60)min + 25 min + 16sec

= (180min + 25min) + 16sec

= (180 min + 25min) + 16sec

= 205min + 16sec (205 × 60)sec + 16sec

= 12300sec + 16sec = 12316 sec

4. (a) 10 years = 1 year = 12 months

= (10 × 12) months

= 120 months

(b) 5 years 10 months = 1 year = 12 month

= (5 × 12) month + 10 months

= 60 months + 10 months

= 70 months

(c) 12 year 7 months = 1 year = 12 months

= (12 × 12)month + 7 months

= 144 months + 7 months = 151 months

5. (a) 6 weeks 5 days = 1 week = 7 days

= (6 × 7) days + 5 days = 42 days + 5 days

= 47 days

(b) 9 weeks 4 days = 1 week = 7 days

= (9 × 7)days + 4 days

= 63 days + 4 days

= 67 days

(c) 42 weeks 1 day = 1 week = 7 days

= (42 × 7) days + 1 day

= 294 days + 1 day = 295 days

(d) 3years = 1 year = 365 days

So, (3 × 365) days = 1095 days

6. (a) 138 minutes = 60minutes = 1 hour

So, 138 min = (138 ÷ 60)hours

Quotient = 2 Remainder = 18

Thus, 138 minutes = 2 hours and 18 minutes

(b) 462 minutes = 60 minutes = 1 hour

So, 462 min = (462 ÷ 60) hours

Quotient = 7 Remainder = 42

Thus, 462 minutes = 7 hours and 42 minutes

(c) 1023 minutes = 60 minutes = 1 hour

So, 1023 minutes = (1023 ÷ 60) hours

Quotient = 17 Remainder = 3

Thus, 1023 minutes = 17 hours and 3 minutes

(d) 2006 minutes = 60 minutes = 1 hours

So, 2006 minutes = (2006 ÷ 60) hours

Quotient = 33 Remainder = 26

Thus, 2006 minutes = 33 hours and 26 minutes

7. (a) 1414 seconds = 1 minute = 60 seconds

So, 1414 seconds = (1414 ÷ 60) minutes

Quotient = 23 Remainder = 34

Thus, 1414 second = 23 minutes and 34 seconds.

(b) 3869 seconds = 1 minute = 60 seconds

So, 3869 seconds = (3869 ÷ 60) minutes

Quotient = 64 Remainder = 29

Thus, 3869 seconds = 64 minutes and 29 seconds.

8. (a) 75 hours = 1 day = 24 hours

So, 75 hours = (75 ÷ 24) days

Quotient = 3 Remainder = 3

Thus, 75 hours = 3 days 3 hours

(b) 735 hours: 1 day = 24 hours

So, 735 hours = (735 ÷ 24) days

Quotient = 30 Remainder = 15

Thus, 735 hours = 30 days and 15 hours

(c) 539 hours = 1 day = 24 hours

So, 539 hours = (539 ÷ 24) days

Quotient = 22, Remainder = 11

Thus, 539 hours = 22 days and 11 hours.

(d) 1018 hours = 1 day = 24 hours

So, 1018 hours = (1018 ÷ 24) days

Quotient = 42, Remainder = 10

Thus, 1018 hours = 42 days and 10 hours.

9. (a) 230 days into weeks

1 week = 7 days

230 days = $\frac{230}{7}$ weeks

$$\begin{array}{r} 32 \\ 7\overline{)\,230} \\ -21\downarrow \\ \hline 20 \\ 14 \\ \hline 6 \end{array}$$

Quotient = 32, Remainder = 6

Thus, 230 days = 32 weeks and 6 days

(b) 341 days

1 week = 7 days

341 days = $\frac{341}{7}$ weeks

$$\begin{array}{r} 48 \\ 7\overline{)\,341} \\ -28\downarrow \\ \hline 61 \\ 56 \\ \hline 6 \end{array}$$

Quotient = 48

Remainder = 7

Thus, 341 days

= 48 weeks and 5 days

Exercisse 12.3

1. (a) 5 days 32 hours = 1 day = 24 hours

So, 5 days 32 hours = 5 days + (24 hours + 8 hours)

= 5 days + 1 day + 8 hours

= 6 days + 8 hours = 6 days and 8 hours.

Days	h
	①
2	1 7
+ 3	1 5
5	3 2

(b)

Weeks	Days
	①
5	0 4
+ 4	0 6
9	1 0

9 weeks 10 days = 1 week = 7 days

so, 9 weeks 10 days = 9 weeks + [7 days + 3 days]

= 9 weeks + 1 week + 3 days

= 10 weeks + 3 days = 10 weeks and 3 days

(c)

h	min
9	3 2
+ 6	2 6
1 5	5 8

= 15 hours and 58 minutes

2. (a)

h	min
1 3	
~~2~~ ~~3~~	6 0
~~2~~ ~~4~~	~~0~~ ~~0~~
– 0 8	4 0
1 5	2 0

[1 hour = 60 minutes]

= 15 hours 20 minutes

(b) [1 Week = 7 days]

Weeks	Days
4	10
~~5~~	~~3~~
– 3	5
1	5

= 1 week and 5 days

(c)

h	min
	3 10
8	~~4~~ ~~0~~
– 7	2 5
1	1 5

= 1 hour and 15 minutes

(d)

Days	h
	1 10
4	~~2~~ ~~0~~
– 2	1 2
2	0 8

= 2 days 8 hours

(e)

Years	Months
1 9	1 2
~~2~~ ~~0~~	~~0~~ ~~0~~
– 1 5	0 9
0 4	0 3

= 4 years and 3 months

(f)

min	s
	3 10
1 8	~~4~~ ~~0~~
– 1 5	3 3
0 3	0 7

= 3 min and 7 sec

3. (a) 6:30pm

= 18 hours and 30 minutes

18 h 30 min + 4 h 50 min

	h		min	
	1	8	3	0
+		4	5	0
	2	2	8	0

22 h 80 min [1 hour = 60 min]

= 22h + [60 + 20] min = 22 h + 1 h + 20 min

= 23 h + 20 min = 23h 20 min = 11:20pm

(b) 3:15pm = 15 hours and 15 minutes

	h		min	
	(6)			
	1	5	1	5
+	0	6	3	0
	2	1	4	5

15h 15 min + 6h 30 min

= 21 h 45 min

= 9h 45 min

4. (a) 2:30pm = 14 hours 30 min

	h		min	
	1	4	3	0
–	0	3	0	0
	1	1	3	0

14h 30min – 3 hours = 11h 30min

= 11:30am

(b) 4:15pm = 16 hours 15min

	h		min	
	1	5	7	5
	~~1~~	~~6~~	~~1~~	~~5~~
–		6	2	5
		9	5	0

[∴ 1 hour = 60 minutes]

16h 15min – 6h 25min

= 9h 50min = 9:50am

5. 8:10am = 8h 10min

	h		min	
	1	9	7	0
	~~2~~	~~0~~	~~1~~	~~0~~
–		6	2	5
	1	2	4	5

8:10pm = 20:10pm

[1 hour = 60 minutes]

12 hours and 45 minutes

6 (a) Starting time of school: 8:45am = 8 hours 45 minutes

Closing time of school: 2:30pm = 14 hours 30 minutes

Working hours of the school: Closing time - opening time

	h		min	
			8	10
	0	13	~~9~~	~~0~~
	~~1~~	~~4~~	~~3~~	~~0~~
–	0	8	4	5
		5	4	5

= 14h 30min – 8h 45min

Answer: Working hours of her school is 5 hours 45 minutes

(b) Arrival of train: Monday at 4:40pm

Departure of train: Thursday at 12:30pm

Duration from 4:40pm to midnight

= 7:20 hours

Duration from midnight tuesday to midnight Wednesday = 24 hours

Duration from midnight wednesday to 12:30pm on thursday = 12:30 hours

Total duration of the Journey of train

= (7:20 + 24 + 24 + 12:30) hours

= 67:50 hours [1 day = 24 hours]

67 hours 50 min = (67 ÷ 24) days + 50 min

Quotient = 2 Remainder = 19

Thus, 6750 hours = 2 days 19 hours and 50 minutes

Answer: The total duration of the jouney was 2 days 19 hours and 50 minutes.

(c) Joining date of company: 8 August 2012

Deaparture date of company: 3 Janurary 2021

Durartion from 8 August 2012 to 8 August 2020 = 8 years

Duration from 8 August 2021 to 8 December 2021: 4 months

Duration for 8 December 2021 to 3 January 2021: 26 days

Total Duration from 8 August 2012 to 3 January 2021: 8 years + 4 months + 27 days

[Including last date too i.e 3 Jan 2021]

= 8 years 4 months and 27 days

Answer: Manoj worked 8 years 4 months and 27 days for the company.

(d) Starting date of winter vaction: 5 December 2020

Ending date of winter vaction: 12 february 2021

Total number of days schools were closed: Days between 5 December 2020 and 12 february 2021

Days between 5 December 2020 to 5 January 2021: 31 days/1 month

Days between 5 January 2021 to 5 February 2021: 31 days/ 1months

Days between 5 January 2021 to 12 February 2021: 6 days

Days between 5 December 2021 to 12 February 2021: 31 days + 31 days + 6 days = 68 days

Answer: For 68 days the school was closed

(e) Kanav Started teaching at the age of : 22 years 7 months

Kanav's current age: 50 years 2 month

Duration of Kanav's teaching journey: Duration between 22 years 7 months and 50 years 2 months

Duration between 22 years 7 months and 49 years 7 months = 27 years

Duration between 49 years 7 months and 50 years: 5 months

Total duration: 27 years + 5 months + 2 months

= 27 years + 7 months = 27 years 7 months

Answer: Kanav is teaching for 27 years and 7 months.

(f) Birth date of Sohail: 7 April 2018

Birth date of Soha: 2 March 2021

7 April 2018 < 2 March 2021

Thus, Sohail is younger than Soha.

Difference between Soha and Sohail's age: Difference between 2 March 2021 and 7 April 2018

Duration between 7 April 2018 to 7 April 2020 = 2 year

Duration between 7 April 2020 to 7 February 2021: 10 months

Duration between 7 february 2021 to 28 february 2021 = 21 days

Duration between 28 february 2021 to 3 March 2021: 2 days

Total duration betweenn 7 April 2018 to 3 March 2021: 2 years + 10 months + 21 days + 2 days

= 2 years 10 month and 23 days

Answer: Soha is younger than Sohail by 2 years 10 months and 23 days

Learning Updates

1. (a) 10:35am = 10 hours and 35 minutes

3h 35 min + 10 h 35 min

	h		min	
		3	3	5
+	1	0	3	5
	1	3	7	0

= 13h 70min [1h = 60min]

= 13h + [60min + 10min]

= 13h + 1h + 10min

= 14h + 10min

= 14 hours 10 min = 2:10pm

(b) 5h 15min + 2350 hours

2350 hours = 11:50pm

= 11h 50min

= 11h 50min + 5h 15min

	h		min	
	1	1	5	0
+		5	1	5
	1	6	6	5

= 16h 65min [1h = 60min]

= 16h + [60min + 5 min]

= 16h + 1h + 5min

= 17h + 5min

17h 5min = 5:05am [After 12:00 midnight am starts = 0505 hours

(c) 2:10pm = 14:10 hours

2:10pm - 1:45min

= 12:25pm

	h		min	
			6	10
	1	13	~~7~~	~~0~~
	~~1~~	~~4~~	~~1~~	~~0~~
–		1	4	5
	1	2	2	5

(d) 1200 hours = 12h 20min = 12:20pm

1220 – 6:30min

= 5:50am or 0550 hours

	h		min	
		11	8	0
	~~1~~	~~2~~	~~2~~	~~0~~
–		6	3	0
		5	5	0

2.

	12 hour clock	24 hour clock
(a)	7:22pm	0722 hours + 1200 hours = 1922 hours
(b)	0048 + 1200 hours = 1248h = 12:48am	0048 hours
(c)	8:05am	0805 hours
(d)	2125 – 1200 = 0925 = 9:25am	2125 hours
(e)	1:20pm	01:20 hours + 1200 hours = 1320 hours
(f)	2318 hours – 1200 hours = 1118 hours = 11:18am	2318 hours
(g)	12:37am	0037 hours
(h)	1919 hours – 1200 hours = 0719 hours = 7:19am	1919 hours

3. Starting date of Book fair: 15 December

Number of days Book fair lasted: 22 days

Last day of Book fair: 15 December + 22 days

= 15 December + 18 Day [Including 15 december]

= 5 January

1 January + [22 – 18] days = 1 January + 4 days

= 5 January

Answer: Last date of Book fair is 6 January.

4. Manjul started studying at: 5:20pm = 17 hours 20 min

Duration of study: 1 hour 50 minutes

Time he finished studying: 5:20pm + 1 hour 50 minutes

= 17h 20min + 1h 50min

= 18h 70min = 18h + [60 + 10]min [1 hour = 60min]

= 19h + 10min

= 19h 10min

= 7:10pm

Answer: Manjul finished studying at 7:10pm.

5. Departure time of train: 9:30am

Arrival time of train at the next station: 7:45am

Duration of the journey: Duration from 9:30am to 12 midnight: 14h 30min

Duration from 12 midnight to 7:45am = 7h 45min

Duration of the journey: 14h 30min + 7h 45min

= 21h 75min [1hour = 60min]

	h		min	
	①			
	1	4	3	0
+		7	4	5
	2	1	7	5

= 21h + [60 + 15]min

= 22h + 15min

Answer: Duration of the journey is 22h 15min.

6. (a)

	h		min	
		11		
	3	~~1~~	8	4
	~~4~~	~~2~~	~~2~~	~~4~~
–	2	4	4	2
	1	7	4	2

Answer: 17h 42min

(b)

	h		min	
			①	
	2	0	4	3
+		4	2	7
	2	4	7	0

24h 70min [1hour = 60min]

24h + [60 + 10]min

25h 10min

(c)

	h		min	
			①	
	3	0	1	4
+		8	2	9
	3	8	4	3

Answer: 38h 43min

7. (a)

	years		months	
			①	
	7		0	8
+	8		0	9
1	5		1	7

15 year 17 month [1 year = 12months]

= 15 year + [12 + 5]months

= 16 years + 5 months

(b)

	Days		hours	
	①		①	
	2	4	1	9
+	2	6	1	8
	5	0	4	3

50 days 37h [1 day = 24hours]

= 50 days + [24 + 13]h

= 51 days + 13h

8. (a)

min		sec	
	13	8	11
~~1~~	~~4~~	~~2~~	~~1~~
– 0	8	3	2
	5	5	9

[1h = 60min]

5min 59sec

(b)

year		months	
4	9	1	5
~~5~~	~~0~~	~~0~~	~~3~~
– 2	3	0	7
2	6	0	8

= [1 year = 12months]

= 26 years 8 months

Multiple Choice Questions

1. 9:15 = 9 hours 15 minutes + 12 hours

= 21 hours 15 minutes

= 2115 hours

(a) 2115 hours

2. 2:20pm = 2 hours 20 minutes + 12 hours

= 14 hours 20 minutes

14 hours 20 minutes - 3:30 hours

14 hours 20 minutes - 3 hours 30 minutes

= 10h 50 min = 10:50am

h		min	
1	3	8	0
~~1~~	~~4~~	~~2~~	~~0~~
–	3	3	0
1	0	5	0

(d) 10:50am

3.

h		min	
	8	8	5
	~~9~~	~~2~~	~~5~~
–	3	4	5
	5	4	0

= [1 hour = 60min]

= 5h 40min

(a) 5 hours 40 minutes

Skills Check

1. Duration of each breaks: 300 seconds

Total number of breaks:6

Total duration of breaks: Duration of each × Number of breaks

= 300sec × 6

= 1800seconds

1800 seconds = 1min = 60 seconds

1800sec = $\left(\frac{1800}{60}\right)$min

= 30 min

Thus, the breaks lasted for 30min.

2. Number of days some flight make to purchase a ticket before flight: 14 days

Date on which Jessica is boarding: June 16th

Date on which Jessica purchase ticket: 14 days before June 16th

= 10 days before June 16th [14 days = 10 days + 4 days]

= June 6th

4 days befoe June 6th = June 2nd.

Thus, Jessica purchased her ticket on June 2nd.

13 Data Handling

Get Started

1.	Elephant	3
2.	Monkey	8
3.	Tiger	4
4.	Giraffe	8
5.	Deer	6

Exercise 13.1

1. (a) Sale of toys in a week

(b) 1cm = 2 toys

(c) 16 toys

(d) Friday

(e) Tuesday

(f) Saloon [Monday + Tuesday + Wednesday + Thursday + Friday + Saturday + Sunday]

=(12 + 18 + 16 + 10 + 6 + 8 + 16) toys

= 86 toys

2. (a) ₹3500

(b) Food

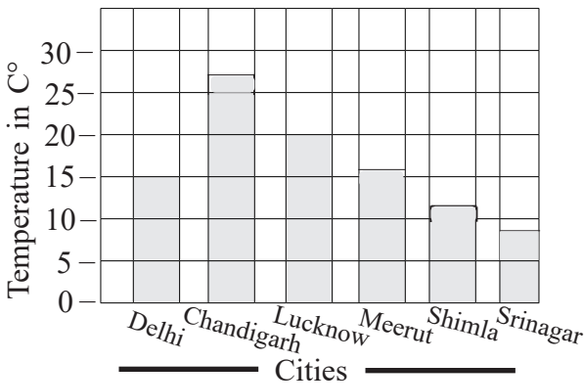
(c) Money spent on [Food, Home, Education, Clothes, Others]

= ₹[2500 + 3000 + 3500 + 4000 + 3500]

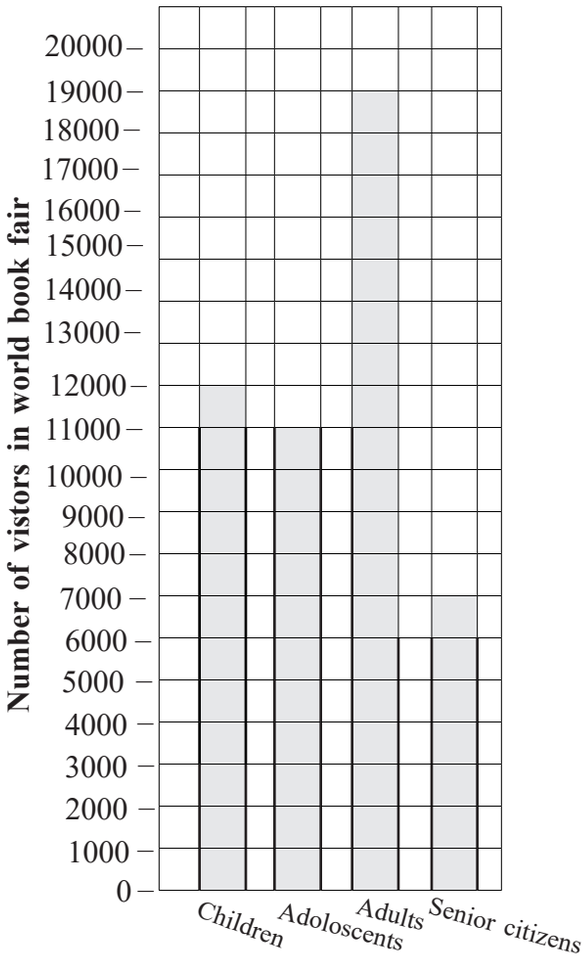
= ₹16500

(d) Clothes

3.



4.



Execise 13.2

1. (a) Maths

(b) Computer

(c) 7

(d) 6 + 7 + 10 = 23

(e) 10 − 2 = 8

2. (a)

Number	Tally Marks
6	𝍸 |
8	𝍸 |||
4	||||
9	𝍸 ||||
10	𝍸 𝍸
16	𝍸 𝍸 𝍸 |

(b)

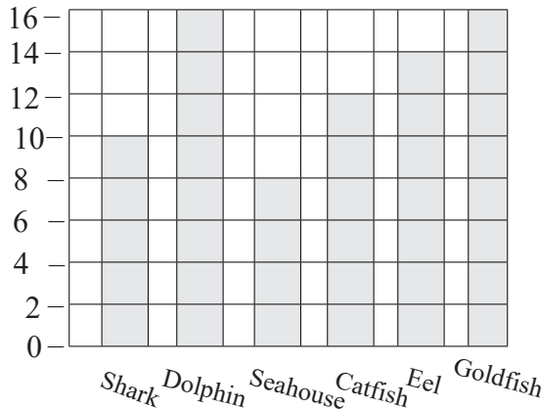
Number	Tally marks
14	𝍸 𝍸 ||||
18	𝍸 𝍸 𝍸 |||
15	𝍸 𝍸 𝍸
23	𝍸 𝍸 𝍸 𝍸 |||
12	𝍸 𝍸 ||
14	𝍸 𝍸 ||||

3. (a) 10 cars (b) 8 cars (c) white

Learning Updates

1.

Number of Different fish breeds in Aquarium



Fish breads	Number of fishes	Tally marks
Shark	10	𝍸 𝍸
Dolphin	16	𝍸 𝍸 𝍸 |
Seahorse	8	𝍸 |||
Catfish	12	𝍸 𝍸 ||
Eel	14	𝍸 𝍸 ||||
Goldfish	16	𝍸 𝍸 𝍸 |

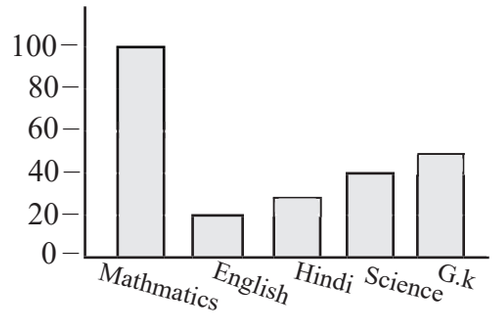
2. (a) Class III

(b) 40

(c) 40 + 30 + 50 + 40 + 20 = 180

(d) 50 – 20 = 30 students

3.



4.

Weight	Tally marks	Number of students
26	||	2
28	||||	4
30	||	2
32	||||	4
36	||	2
40	|||	3
42	|||	3

Multiple Choice Questions

1. (a) data

2. (b) bar graph

3. (c) line graph

4. (a) raw data

Skills Check

1. (a) June

(b) Jan

(c) Temperature in June - Temperature in february = 40 – 16 = 24° C

(d) May, June, July, August and September

(e) January, February, March, April, October, November and December.