ANSWERS

EXERCISE 1.1

1. (a) Ten
(b) Ten
(c) Ten
(d) Ten
(e) Ten

2. (a) 73,75,307
(b) 9,05,00,041
(c) 7,52, 21,302
(d) 58,423,202
(e) 23,30,010

3. (a) 8,75,95,762 — Eight crore seventy-five lakh ninety-five thousand seven hundred sixty two.
(b) 85,46,283 — Eighty-five lakh forty-six thousand two hundred eighty-three.
(c) 9,99,00,046 — Nine crore ninety-nine lakh forty six.
(d) 9,84,32,701 — Nine crore eighty-four lakh, thirty-two thousand seven hundred one.

4. (a) 78,921,092 — Seventy-eight million, nine hundred twenty-one thousand, ninety-two.
(b) 7,452,283 — Seven million four hundred fifty-two thousand two hundred eighty-three.
(c) 99,985,102 — Ninety-nine million nine hundred eighty-five thousand, one hundred two.
(d) 48,049,831 — Forty-eight million forty-nine thousand eight hundred thirty one.

EXERCISE 1.2

1. 7,707 tickets
2. 3,020 runs
3. 2,28,800 votes
4. ₹ 6,86,659; second week, ₹ 1,14,877
5. 52,965
6. 87,575 screws
7. ₹ 30,592
8. 65,124
9. 18 shirts, 1 m 30 cm
10. 177 boxes
11. 22 km 500 m
12. 180 glasses.

EXERCISE 1.3

1. (a) 1,700 (b) 500
(c) 16,000
(d) 7,000

2. (a) 5,000 ; 5,090 (b) 61,100 ; 61,130
(c) 7,800 ; 7,840
(d) 4,40,900 ; 4,40,980

3. (a) 1,20,000 (b) 1,75,00,000 (c) 7,80,000 (d) 3,00,000

EXERCISE 2.1

1. 11,000 ; 11,001 ; 11,002
2. 10,000 ; 9,999 ; 9,998
3. 0
4. 20
5. (a) 24,40,702 (b) 1,00,200 (c) 11,000,00 (d) 23,45,671
6. (a) 93 (b) 9,999 (c) 2,08,089 (e) 76,54,320

7. (a) 503 is on the left of 530 ; 503 < 530
(b) 307 is on the left of 370 ; 307 < 370
(c) 56,789 is on the left of 98,765 ; 56,789 < 98,765
(d) 98,30,415 is on the left of 1,00,23,001 ; 98,30,415 < 1,00,23,001

8. (a) F (b) F (c) T (d) T (e) T (f) F (g) F (h) F (i) T (j) F
(k) F (l) T (m) F

EXERCISE 2.2

1. (a) 1,408 (b) 4,600

2. (a) 1,76,800 (b) 16,600 (c) 2,91,000 (d) 27,90,000
(e) 85,500 (f) 10,00,000

3. (a) 5,940 (b) 54,27,900 (c) 81,26,500 (d) 1,92,25,000

4. (a) 76,014 (b) 87,108 (c) 2,60,064 (d) 1,68,840

5. ₹ 3,960 **6.** ₹ 4,500

7. (i) → (c) (ii) → (a) (iii) → (b)

EXERCISE 2.3

1. (a) **2.** Yes

3. Both of them will be 'l'

4. (a) 73,528 (b) 54,42,437 (c) 20,600 (d) 5,34,375 (e) 17,640

5. 123456 × 8 + 6 = 987654
1234567 × 8 + 7 = 9876543

EXERCISE 3.1

1. (a) 1, 2, 3, 4, 6, 8, 12, 24 (b) 1, 3, 5, 15
(c) 1, 3, 7, 21 (d) 1, 3, 9, 27
(e) 1, 2, 3, 4, 6, 12 (f) 1, 2, 4, 5, 10, 20
(g) 1, 2, 3, 6, 9, 18 (h) 1, 23 (i) 1, 2, 3, 4, 6, 9, 12, 18, 36

2. (a) 5, 10, 15, 20, 25 (b) 8, 16, 24, 32, 40 (c) 9, 18, 27, 36, 45

3. (i) → (b) (ii) → (d) (iii) → (a)
(iv) → (f) (v) → (e)

4. 9, 18, 27, 36, 45, 54, 63, 72, 81, 90, 99

EXERCISE 3.2

1. (a) even number (b) even number

2. (a) F (b) T (c) T (d) F
(e) F (f) F (g) F (h) T
(i) F (j) T

3. 17 and 71, 37 and 73, 79 and 97

4. Prime numbers : 2, 3, 5, 7, 11, 13, 17, 19
Composite numbers : 4, 6, 8, 9, 10, 12, 14, 15, 16, 18 **5.** 7

6. (a) 3 + 41 (b) 5 + 31 (c) 5 + 19 (d) 5 + 13
(This could be one of the ways. There can be other ways also.)

7. 3, 5; 5, 7 ; 11, 13

8. (a) and (c) **9.** 90, 91, 92 , 93, 94, 95, 96

10. (a) 3 + 5 + 13 (b) 3 + 5 + 23

(c) 13 + 17 + 23 (d) 7 + 13 + 41

(This could be one of the ways. There can be other ways also.)

11. 2, 3 ; 2, 13; 3, 17; 7, 13; 11, 19

12. (a) prime number (b) composite number

(c) prime number, composite number (d) 2 (e) 4 (f) 2

EXERCISE 3.3

1.

Number	Divisible by								
	2	3	4	5	6	8	9	10	11
990	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes
1586	Yes	No	No	No	No	No	No	No	No
275	No	No	No	Yes	No	No	No	No	Yes
6686	Yes	No	No	No	No	No	No	No	No
639210	Yes	Yes	No	Yes	Yes	No	No	Yes	Yes
429714	Yes	Yes	No	No	Yes	No	Yes	No	No
2856	Yes	Yes	Yes	No	Yes	Yes	No	No	No
3060	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No
406839	No	Yes	No	No	No	No	No	No	No

2. Divisible by 4 : (a) , (b), (c), (d), (f), (g), (h), (i)

Divisible by 8 : (b), (d), (f), (h)

3. (a), (f), (g), (i) **4.** (a), (b), (d), (e), (f)

5. (a) 2 and 8 (b) 0 and 9 **6.** (a) 8 (b) 6

EXERCISE 3.4

1. (a) 1, 2, 4 (b) 1, 5 (c) 1, 5 (d) 1, 2, 4, 8

2. (a) 1, 2, 4 (b) 1, 5

3. (a) 24, 48, 72 (b) 36, 72, 108

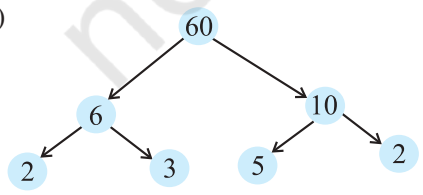
4. 12, 24, 36, 48, 60, 72, 84, 96

5. (a), (b), (e), (f) **6.** 60 **7.** 1, 2, 3, 4, 6

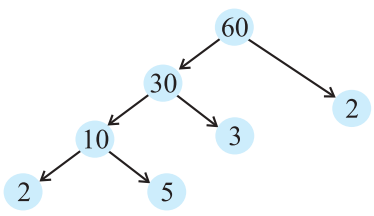
EXERCISE 3.5

1. (a) F (b) T (c) F (d) T (e) F (f) F (g) T (h) T (i) F

2. (a)



(b)



3. 1 and the number itself

4. 9999, $9999 = 3 \times 3 \times 11 \times 101$

5. 10000, $10000 = 2 \times 2 \times 2 \times 2 \times 5 \times 5 \times 5 \times 5$

6. $1729 = 7 \times 13 \times 19$

The difference of two consecutive prime factors is 6

7. (i) $2 \times 3 \times 4 = 24$ is divisible by 6.

(ii) $5 \times 6 \times 7 = 210$ is divisible by 6.

9. (b), (c)

10. Yes

11. No. Number 12 is divisible by both 4 and 6; but 12 is not divisible by 24.

12. $2 \times 3 \times 5 \times 7 = 210$

EXERCISE 3.6

1. (a) 6 (b) 6 (c) 6 (d) 9 (e) 12 (f) 34 (g) 35 (h) 7
(i) 9 (j) 3

2. (a) 1 (b) 2 (c) 1

3. No ; 1

EXERCISE 3.7

1. 3 kg **2.** 6930 cm **3.** 75 cm **4.** 120

5. 960 **6.** 7 minutes 12 seconds past 7 a.m.

7. 31 litres **8.** 95 **9.** 1152

10. (a) 36 (b) 60 (c) 30 (d) 60

Here, in each case LCM is a multiple of 3

Yes, in each case LCM = the product of two numbers

11. (a) 20 (b) 18 (c) 48 (d) 45

The LCM of the given numbers in each case is the larger of the two numbers.

EXERCISE 4.1

1. (a) O, B, C, D, E.

(b) Many answers are possible. Some are: $\overleftrightarrow{DE}$, $\overleftrightarrow{DO}$, $\overleftrightarrow{DB}$, $\overleftrightarrow{EO}$ etc.

(c) Many answers are possible. Some are: $\overrightarrow{DB}$, $\overrightarrow{DE}$, $\overrightarrow{OB}$, $\overrightarrow{OE}$, $\overrightarrow{EB}$ etc.

(d) Many answers are possible. Some are: $\overline{DE}$, $\overline{DO}$, $\overline{EO}$, $\overline{OB}$, $\overline{EB}$ etc.

2. $\overrightarrow{AB}$, $\overrightarrow{AC}$, $\overrightarrow{AD}$, $\overrightarrow{BA}$, $\overrightarrow{BC}$, $\overrightarrow{BD}$, $\overrightarrow{CA}$, $\overrightarrow{CB}$, $\overrightarrow{CD}$, $\overrightarrow{DA}$, $\overrightarrow{DB}$, $\overrightarrow{DC}$.

3. (a) Many answers. One answer is $\overleftrightarrow{AE}$.

(b) Many answers. One answer is $\overleftrightarrow{AE}$.

(c) $\overleftrightarrow{CO}$ or $\overleftrightarrow{OC}$

(d) Many answers are possible. Some are, $\overleftrightarrow{CO}$, $\overleftrightarrow{AE}$ and $\overleftrightarrow{AE}$, $\overleftrightarrow{EF}$.

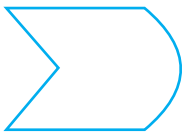
4. (a) Countless (b) Only one.

6. (a) T (b) T (c) T (d) F (e) F
(f) F (g) T (h) F (i) F (j) F (k) T

EXERCISE 4.2

1. Open : (a), (c); Closed : (b), (d), (e).

4. (a) Yes (b) Yes

5. (a)  (b)  (c) Not possible.

EXERCISE 4.3

1. $\angle$ A or $\angle$ DAB; $\angle$ B or $\angle$ ABC; $\angle$ C or $\angle$ BCD; $\angle$ D or $\angle$ CDA

2. (a) A (b) A, C, D. (c) E, B, O, F.

EXERCISE 4.4

1. Neither in exterior nor in interior

2. (a) ΔABC, ΔABD, ΔADC.

(b) Angles: $\angle$ B, $\angle$ C, $\angle$ BAC, $\angle$ BAD, $\angle$ CAD, $\angle$ ADB, $\angle$ ADC

(c) Line segments: $\overline{AB}$, $\overline{AC}$, $\overline{BC}$, $\overline{AD}$, $\overline{BD}$, $\overline{DC}$

(d) ΔABC, ΔABD

EXERCISE 4.5

1. The diagonals will meet in the interior of the quadrilateral.

2. (a) $\overline{KL}$, $\overline{NM}$ and $\overline{KN}$, $\overline{ML}$ (b) $\angle$ K, $\angle$ M and $\angle$ N, $\angle$ L

(c) $\overline{KL}$, $\overline{KN}$ and $\overline{NM}$, $\overline{ML}$ or $\overline{KL}$, $\overline{LM}$ and $\overline{NM}$, $\overline{NK}$

(d) $\angle$ K, $\angle$ L and $\angle$ M, $\angle$ N or $\angle$ K, $\angle$ L and $\angle$ L, $\angle$ M etc.

EXERCISE 4.6

1. (a) O (b) $\overline{OA}$, $\overline{OB}$, $\overline{OC}$ (c) $\overline{AC}$ (d) $\overline{ED}$

(e) O, P (f) Q (g) OAB (Shaded portion)

(h) Segment ED (Shaded portion)

2. (a) Yes (b) No

4. (a) True (b) True

EXERCISE 5.1

1. Chances of errors due to improper viewing are more.

2. Accurate measurement will be possible.

3. Yes. (because C is 'between' A and B).

4. B lies between A and C.

5. D is the mid point of $\overline{AG}$ (because, AD = DG = 3 units).

6. AB = BC and BC = CD, therefore, AB = CD

7. The sum of the lengths of any two sides of a triangle can never be less than the length of the third side.

EXERCISE 5.2

1. (a) $\frac{1}{2}$ (b) $\frac{1}{4}$ (c) $\frac{1}{4}$ (d) $\frac{3}{4}$ (e) $\frac{3}{4}$ (f) $\frac{3}{4}$

2. (a) 6 (b) 8 (c) 8 (d) 2

3. (a) West (b) West (c) North (d) South

(To answer (d), it is immaterial whether we turn clockwise or anticlockwise, because one full revolution will bring us back to the original position).

4. (a) $\frac{3}{4}$ (b) $\frac{3}{4}$ (c) $\frac{1}{2}$

5. (a) 1 (b) 2 (c) 2 (d) 1 (e) 3 (f) 2

6. (a) 1 (b) 3 (c) 4 (d) 2 (clockwise or anticlockwise).

7. (a) 9 (b) 2 (c) 7 (d) 7

(We should consider only clockwise direction here).

EXERCISE 5.3

1. (i) → (c); (ii) → (d); (iii) → (a); (iv) → (e); (v) → (b).

2. Acute : (a) and(f); Obtuse : (b); Right: (c); Straight: (e); Reflex : (d).

EXERCISE 5.4

1. (i) 90°; (ii) 180°.

2. (a) T (b) F (c) T (d) T (e) T

3. (a) Acute: 23°, 89°; (b) Obtuse: 91°, 179°.

7. (a) acute (b) obtuse (if the angle is less than 180°)
(c) straight (d) acute (e) an obtuse angle.

9. 90°, 30°, 180°

10. The view through a magnifying glass will not change the angle measure.

EXERCISE 5.5

1. (a) and (c) **2.** 90°

3. One is a 30° – 60° – 90° set square; the other is a 45° – 45° – 90° set square. The angle of measure 90° (i.e. a right angle) is common between them.

4. (a) Yes (b) Yes (c) $\overline{BH}$, $\overline{DF}$ (d) All are true.

EXERCISE 5.6

1. (a) Scalene triangle (b) Scalene triangle (c) Equilateral triangle
(d) Right triangle (e) Isosceles right triangle (f) Acute-angled triangle

2. (i) → (e); (ii) → (g); (iii) → (a); (iv) → (f); (v) → (d); (vi) → (c); (vii) → (b).

3. (a) Acute-angled and isosceles. (b) Right-angled and scalene.
(c) Obtuse-angled and isosceles. (d) Right-angled and isosceles.
(e) Equilateral and acute angled. (f) Obtuse-angled and scalene.

4. (b) is not possible. (Remember : The sum of the lengths of any two sides of a triangle has to be greater than the third side.)

EXERCISE 5.7

1. (a) T (b) T (c) T (d) T (e) F (f) F

2. (a) A rectangle with all sides equal becomes a square.

(b) A parallelogram with each angle a right angle becomes a rectangle.

(c) A rhombus with each angle a right angle becomes a square.

(d) All these are four-sided polygons made of line segments.

(e) The opposite sides of a square are parallel, so it is a parallelogram.

3. A square is a 'regular' quadrilateral

EXERCISE 5.8

1. (a) is not a closed figure and hence is not a polygon.

(b) is a polygon of six sides.

(c) and (d) are not polygons since they are not made of line segments.

2. (a) A Quadrilateral (b) A Triangle (c) A Pentagon (5-sided) (d) An Octagon

EXERCISE 5.9

1. (a) → (ii); (b) → (iv); (c) → (v); (d) → (iii); (e) → (i).

2. (a), (b) and (c) are cuboids; (d) is a cylinder; (e) is a sphere.

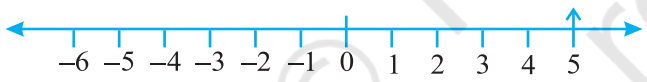
EXERCISE 6.1

1. (a) Decrease in weight (b) 30 km south (c) 80 m west

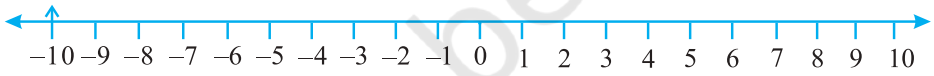
(d) Gain of ₹700 (e) 100 m below sea level

2. (a) + 2000 (b) – 800 (c) + 200 (d) – 700

3. (a) + 5



(b) – 10



(c) + 8

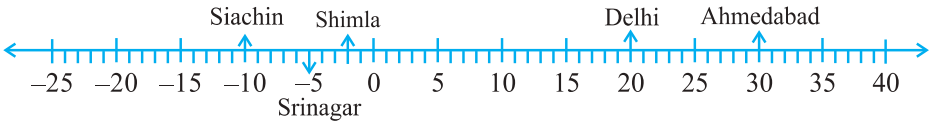
(d) – 1

(e) – 6

4. (a) F (b) negative integer (c) B → + 4, E → – 10
(d) E (e) D, C, B, A, O, H, G, F, E

5. (a) – 10°C, – 2°C, + 30°C, + 20°C, – 5°C

(b)



(c) Siachin (d) Ahmedabad and Delhi

6. (a) 9 (b) – 3 (c) 0 (d) 10 (e) 6 (f) 1

7. (a) – 6, – 5, – 4, – 3, – 2, – 1 (b) – 3,– 2, – 1, 0, 1, 2, 3
(c) – 14, – 13, – 12, – 11, – 10, – 9
(d) – 29, – 28, – 27, – 26, – 25, – 24

8. (a) – 19, – 18, – 17, – 16 (b) – 11, – 12, – 13, – 14

9. (a) T (b) F; – 100 is to the left of – 50 on number line
(c) F; greatest negative integer is – 1
(d) F; – 26 is smaller than – 25

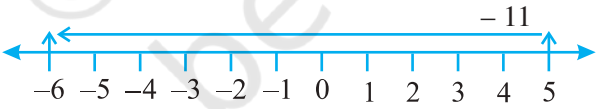
10. (a) 2 (b) – 4 (c) to the left (d) to the right

EXERCISE 6.2

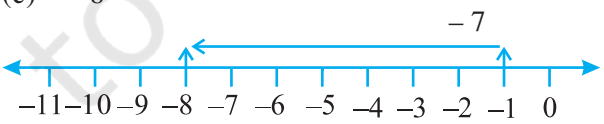
1. (a) 8 (b) 0 (c) – 4 (d) – 5

2. (a) 3

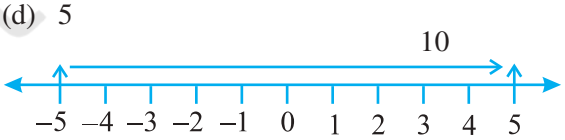
(b) – 6



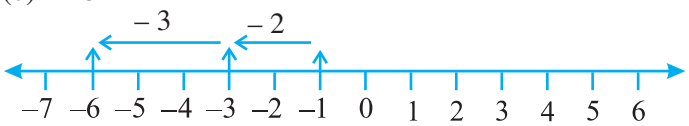
(c) – 8



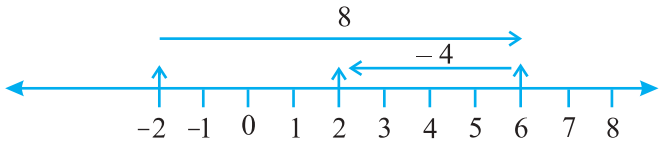
(d) 5



(e) – 6



(f) 2



3. (a) 4 (b) 5 (c) 9 (d) –100 (e) – 650 (f) – 317

4. (a) – 217 (b) 0 (c) – 81 (d) 50

5. (a) 4 (b) –38

EXERCISE 6.3

1. (a) 15 (b) – 18 (c) 3 (d) – 33 (e) 35 (f) 8

2. (a) < (b) > (c) > (d) >

3. (a) 8 (b) – 13 (c) 0 (d) – 8 (e) 5

4. (a) 10 (b) 10 (c) – 105 (d) 92

EXERCISE 7.1

1. (i) $\frac{2}{4}$ (ii) $\frac{8}{9}$ (iii) $\frac{4}{8}$ (iv) $\frac{1}{4}$ (v) $\frac{3}{7}$ (vi) $\frac{3}{12}$
(vii) $\frac{10}{10}$ (viii) $\frac{4}{9}$ (ix) $\frac{4}{8}$ (x) $\frac{1}{2}$

3. Shaded portions do not represent the given fractions.

4. $\frac{8}{24}$ **5.** $\frac{40}{60}$

6. (a) Arya will divide each sandwich into three equal parts, and give one part of each sandwich to each one of them.

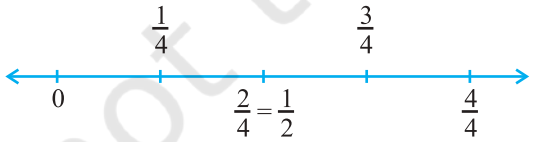
(b) $\frac{1}{3}$ **7.** $\frac{2}{3}$ **8.** 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12; $\frac{5}{11}$

9. 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113; $\frac{4}{12}$

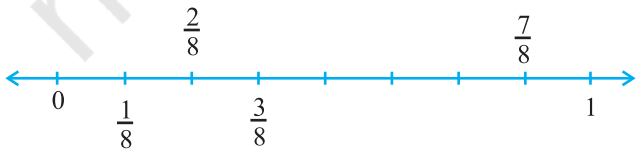
10. $\frac{4}{8}$ **11.** $\frac{3}{8}, \frac{5}{8}$

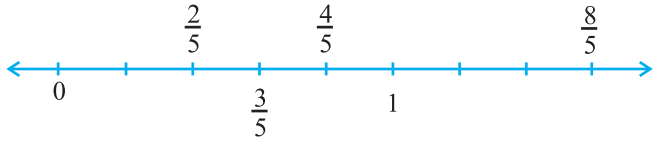
EXERCISE 7.2

1. (a)



(b)



(c) 

2. (a) $6\frac{2}{3}$ (b) $2\frac{1}{5}$ (c) $2\frac{3}{7}$ (d) $5\frac{3}{5}$ (e) $3\frac{1}{6}$ (f) $3\frac{8}{9}$

3. (a) $\frac{31}{4}$ (b) $\frac{41}{7}$ (c) $\frac{17}{6}$ (d) $\frac{53}{5}$ (e) $\frac{66}{7}$ (f) $\frac{76}{9}$

EXERCISE 7.3

1. (a) $\frac{1}{2}, \frac{2}{4}, \frac{3}{6}, \frac{4}{8}$; Yes (b) $\frac{4}{12}, \frac{3}{9}, \frac{2}{6}, \frac{1}{3}, \frac{6}{15}$; No

2. (a) $\frac{1}{2}$ (b) $\frac{4}{6}$ (c) $\frac{3}{9}$ (d) $\frac{2}{8}$ (e) $\frac{3}{4}$ (i) $\frac{6}{18}$

(ii) $\frac{4}{8}$ (iii) $\frac{12}{16}$ (iv) $\frac{8}{12}$ (v) $\frac{4}{16}$

(a), (ii); (b), (iv); (c), (i); (d), (v); (e), (iii)

3. (a) 28 (b) 16 (c) 12 (d) 20 (e) 3

4. (a) $\frac{12}{20}$ (b) $\frac{9}{15}$ (c) $\frac{18}{30}$ (d) $\frac{27}{45}$

5. (a) $\frac{9}{12}$ (b) $\frac{3}{4}$

6. (a) equivalent (b) not equivalent (c) not equivalent

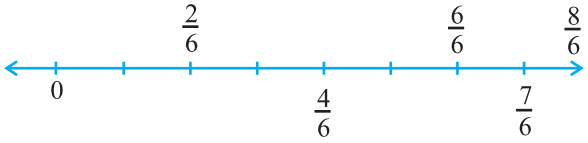
7. (a) $\frac{4}{5}$ (b) $\frac{5}{2}$ (c) $\frac{6}{7}$ (d) $\frac{3}{13}$ (e) $\frac{1}{4}$

8. Ramesh $\rightarrow \frac{10}{20}=\frac{1}{2}$, Sheelu $\rightarrow \frac{25}{50}=\frac{1}{2}$, Jamaal $\rightarrow \frac{40}{80}=\frac{1}{2}$. Yes

9. (i) $\rightarrow$ (d) (ii) $\rightarrow$ (e) (iii) $\rightarrow$ (a) (iv) $\rightarrow$ (c) (v) $\rightarrow$ (b)

EXERCISE 7.4

1. (a) $\frac{1}{8}<\frac{3}{8}<\frac{4}{8}<\frac{6}{8}$ (b) $\frac{3}{9}<\frac{4}{9}<\frac{6}{9}<\frac{8}{9}$

(c) 

$\frac{5}{6}>\frac{2}{6}, \frac{3}{6}>\frac{0}{6}, \frac{1}{6}<\frac{6}{6}, \frac{8}{6}>\frac{5}{6}$

2. (a) $\frac{3}{6}<\frac{5}{6}$ (b) $\frac{1}{7}<\frac{1}{4}$ (c) $\frac{4}{5}<\frac{5}{5}$ (d) $\frac{3}{5}>\frac{3}{7}$

4. (a) $\frac{1}{6}<\frac{1}{3}$ (b) $\frac{3}{4}>\frac{2}{6}$ (c) $\frac{2}{3}>\frac{2}{4}$ (d) $\frac{6}{6}=\frac{3}{3}$

(e) $\frac{5}{6}<\frac{5}{5}$

5. (a) $\frac{1}{2}>\frac{1}{5}$ (b) $\frac{2}{4}=\frac{3}{6}$ (c) $\frac{3}{5}<\frac{2}{3}$ (d) $\frac{3}{4}>\frac{2}{8}$

(e) $\frac{3}{5}<\frac{6}{5}$ (f) $\frac{7}{9}>\frac{3}{9}$ (g) $\frac{1}{4}=\frac{2}{8}$ (h) $\frac{6}{10}<\frac{4}{5}$

(i) $\frac{3}{4}<\frac{7}{8}$ (j) $\frac{6}{10}=\frac{3}{5}$ (k) $\frac{5}{7}=\frac{15}{21}$

6. (a) $\frac{1}{6}$ (b) $\frac{1}{5}$ (c) $\frac{4}{25}$ (d) $\frac{4}{25}$ (e) $\frac{1}{6}$ (f) $\frac{1}{5}$

(g) $\frac{1}{5}$ (h) $\frac{1}{6}$ (i) $\frac{4}{25}$ (j) $\frac{1}{6}$ (k) $\frac{1}{6}$ (l) $\frac{4}{25}$

(a), (e), (h), (j), (k) ; (b), (f), (g) ; (c), (d), (i), (l)

7. (a) No ; $\frac{5}{9}=\frac{25}{45}, \frac{4}{5}=\frac{36}{45}$ and $\frac{25}{45}\neq\frac{36}{45}$

(b) No ; $\frac{9}{16}=\frac{81}{144}, \frac{5}{9}=\frac{80}{144}$ and $\frac{81}{144}\neq\frac{80}{144}$ (c) Yes ; $\frac{4}{5}=\frac{16}{20}$

(d) No ; $\frac{1}{15}=\frac{2}{30}$ and $\frac{2}{30}\neq\frac{4}{30}$

8. Ila has read less **9.** Rohit

10. Same fraction ($\frac{4}{5}$) of students got first class in both the classes.

EXERCISE 7.5

1. (a) + (b) – (c) +

2. (a) $\frac{1}{9}$ (b) $\frac{11}{15}$ (c) $\frac{2}{7}$ (d) 1 (e) $\frac{1}{3}$

(f) 1 (g) $\frac{1}{3}$ (h) $\frac{1}{4}$ (i) $\frac{3}{5}$

3. The complete wall.

4. (a) $\frac{4}{10}\left(=\frac{2}{5}\right)$ (b) $\frac{8}{21}$ (c) $\frac{6}{6}\ (=1)$ (d) $\frac{7}{27}$

5. $\frac{2}{7}$

EXERCISE 7.6

1. (a) $\frac{17}{21}$ (b) $\frac{23}{30}$ (c) $\frac{46}{63}$ (d) $\frac{22}{21}$ (e) $\frac{17}{30}$

(f) $\frac{22}{15}$ (g) $\frac{5}{12}$ (h) $\frac{3}{6}\left(=\frac{1}{2}\right)$ (i) $\frac{23}{12}$ (j) $\frac{6}{6}\ (=1)$ (k) 5

(l) $\frac{95}{12}$ (m) $\frac{9}{5}$ (n) $\frac{5}{6}$

2. $\frac{23}{20}$ metre **3.** $2\frac{5}{6}$

4. (a) $\frac{7}{8}$ (b) $\frac{7}{10}$ (c) $\frac{1}{3}$

5. (a)

$\frac{2}{3}$	$\frac{4}{3}$	2
$\frac{1}{3}$	$\frac{2}{3}$	1
$\frac{1}{3}$	$\frac{2}{3}$	1

(b)

$\frac{1}{2}$	$\frac{1}{3}$	$\frac{5}{6}$
$\frac{1}{3}$	$\frac{1}{4}$	$\frac{7}{12}$
$\frac{1}{6}$	$\frac{1}{12}$	$\frac{1}{4}$

6. Length of the other piece = $\frac{5}{8}$ metre

7. The distance walked by Nandini = $\frac{4}{10}\left(=\frac{2}{5}\right)$ km

8. Asha's bookshelf is more full; by $\frac{13}{30}$

9. Rahul takes less time; by $\frac{9}{20}$ minutes

EXERCISE 8.1

1.

	Hundreds (100)	Tens (10)	Ones (1)	Tenths $(\frac{1}{10})$
(a)	0	3	1	2
(b)	1	1	0	4

2.

	Hundreds (100)	Tens (10)	Ones (1)	Tenths $(\frac{1}{10})$
(a)	0	1	9	4
(b)	0	0	0	3
(c)	0	1	0	6
(d)	2	0	5	9

3. (a) 0.7 (b) 20.9 (c) 14.6 (d) 102.0 (e) 600.8

4. (a) 0.5 (b) 3.7 (c) 265.1 (d) 70.8 (e) 8.8
(f) 4.2 (g) 1.5 (h) 0.4 (i) 2.4 (j) 3.6
(k) 4.5

5. (a) $\frac{6}{10}, \frac{3}{5}$ (b) $\frac{25}{10}, \frac{5}{2}$ (c) 1, 1 (d) $\frac{38}{10}, \frac{19}{5}$ (e) $\frac{137}{10}, \frac{137}{10}$
(f) $\frac{212}{10}, \frac{106}{5}$ (g) $\frac{64}{10}, \frac{32}{5}$

6. (a) 0.2cm (b) 3.0 cm (c) 11.6 cm (d) 4.2 cm
(e) 16.2 cm (f) 8.3 cm

7. (a) 0 and 1; 1 (b) 5 and 6; 5 (c) 2 and 3; 3 (d) 6 and 7; 6
(e) 9 and 10; 9 (f) 4 and 5; 5

8.

9. A, 0.8 cm; B, 1.3 cm; C, 2.2 cm; D, 2.9 cm

10. (a) 9.5 cm (b) 6.5 cm

EXERCISE 8.2

1.

	Ones	Tenths	Hundredths	Number
(a)	0	2	6	0.26
(b)	1	3	8	1.38
(c)	1	2	8	1.28

2. (a) 3.25 (b) 102.63 (c) 30.025 (d) 211.902 (e) 12.241

3.

	Hundreds	Tens	Ones	Tenths	Hundredths	Thousandths
(a)	0	0	0	2	9	0
(b)	0	0	2	0	8	0
(c)	0	1	9	6	0	0
(d)	1	4	8	3	2	0
(e)	2	0	0	8	1	2

4. (a) 29.41 (b) 137.05 (c) 0.764 (d) 23.206 (e) 725.09

5. (a) Zero point zero three (b) One point two zero
(c) One hundred eight point five six (d) Ten point zero seven
(e) Zero point zero three two (f) Five point zero zero eight

6. (a) 0 and 0.1 (b) 0.4 and 0.5 (c) 0.1 and 0.2
(d) 0.6 and 0.7 (e) 0.9 and 1.0 (f) 0.5 and 0.6

7. (a) $\frac{3}{5}$ (b) $\frac{1}{20}$ (c) $\frac{3}{4}$ (d) $\frac{9}{50}$ (e) $\frac{1}{4}$
(f) $\frac{1}{8}$ (g) $\frac{33}{500}$

EXERCISE 8.3

1. (a) 0.4 (b) 0.07 (c) 3 (d) 0.5 (e) 1.23
(f) 0.19 (g) both are same (h) 1.490 (i) both are same (j) 5.64

EXERCISE 8.4

1. (a) ₹ 0.05 (b) ₹ 0.75 (c) ₹ 0.20 (d) ₹ 50.90 (e) ₹ 7.25

2. (a) 0.15 m (b) 0.06 m (c) 2.45 m (d) 9.07 m (e) 4.19 m

3. (a) 0.5 cm (b) 6.0 cm (c) 16.4 cm (d) 9.8 cm (e) 9.3 cm

4. (a) 0.008 km (b) 0.088 km (c) 8.888 km (d) 70.005 km

5. (a) 0.002 kg (b) 0.1 kg (c) 3.750 kg (d) 5.008 kg (e) 26.05 kg

EXERCISE 8.5

1. (a) 38.587 (b) 29.432 (c) 27.63 (d) 38.355 (e) 13.175 (f) 343.89

2. ₹ 68.35 **3.** ₹ 26.30 **4.** 5.25 m

5. 3.042 km **6.** 22.775 km **7.** 18.270 kg

EXERCISE 8.6

1. (a) ₹ 2.50 (b) 47.46 m (c) ₹ 3.04 (d) 3.155 km (e) 1.793 kg

2. (a) 3.476 (b) 5.78 (c) 11.71 (d) 1.753

3. ₹ 14.35 **4.** ₹ 6.75 **5.** 15.55 m

6. 9.850 km **7.** 4.425 kg

EXERCISE 9.1

1.

Marks	Tally marks	Number of students
1	||	2
2	|||	3
3	|||	3
4	𝍸 ||	7
5	𝍸 |	6
6	𝍸 ||	7
7	𝍸	5
8	||||	4
9	|||	3

(a) 12 (b) 8

2.

Sweets	Tally marks	Number of students
Ladoo	𝍸 𝍸 I	11
Barfi	III	3
Jalebi	𝍸 II	7
Rasgulla	𝍸 IIII	9
		30

(b) Ladoo

3.

Numbers	Tally marks	How many times?
1	𝍸 II	7
2	𝍸 I	6
3	𝍸	5
4	IIII	4
5	𝍸 𝍸 I	11
6	𝍸 II	7

(a) 4 (b) 5 (c) 1 and 6

4. (i) Village D (ii) Village C (iii) 3 (iv) 28

5. (a) VIII (b) No (c) 12

6. (a) Number of bulbs sold on Friday are 14. Similarly, number of bulbs sold on other days can be found.

(b) Maximum number of bulbs were sold on Sunday.

(c) Same number of bulbs were sold on Wednesday and Saturday.

(d) Minimum number of bulbs were sold on Wednesday and Saturday.

(e) 10 Cartons

7. (a) Martin (b) 700 (c) Anwar, Martin, Ranjit Singh

EXERCISE 9.2

1.

	⊗ - 10 animals
Village A	⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗
Village B	⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗
Village C	⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗
Village D	⊗ ⊗ ⊗ ⊗
Village E	⊗ ⊗ ⊗ ⊗ ⊗ ⊗

(a) 6 (b) Village B (c) Village C

2.

	- 100 students
1996	
1998	
2000	
2002	
2004	

A (a) 6 (b) 5 complete and 1 incomplete

B Second

EXERCISE 9.3

1. (a) 2002 (b) 1998

2. (a) This bar graph shows the number of shirts sold from Monday to Saturday

(b) 1 unit = 5 shirts (c) Saturday, 60

(d) Tuesday (e) 35

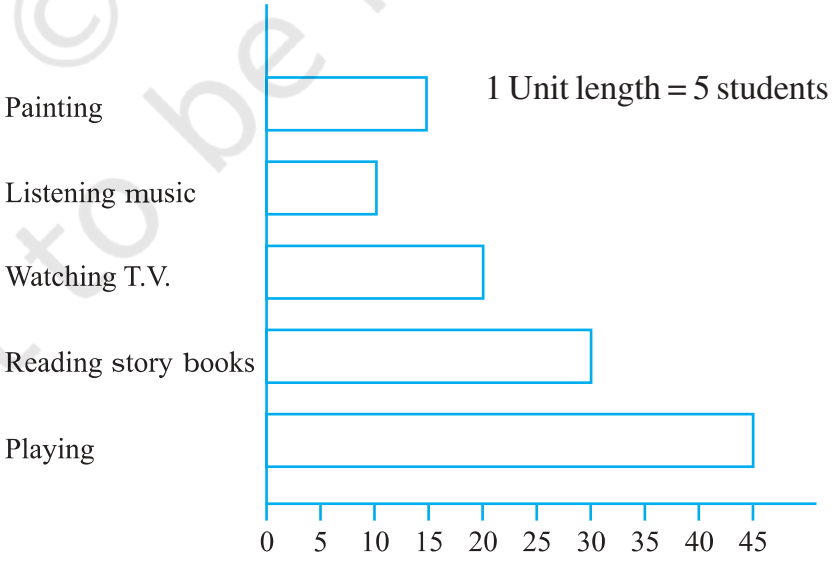
3. (a) This bar graph shows the marks obtained by Aziz in different subjects.

(b) Hindi (c) Social Studies

(d) Hindi – 80, English – 60, Mathematics – 70, Science – 50 and Social Studies – 40.

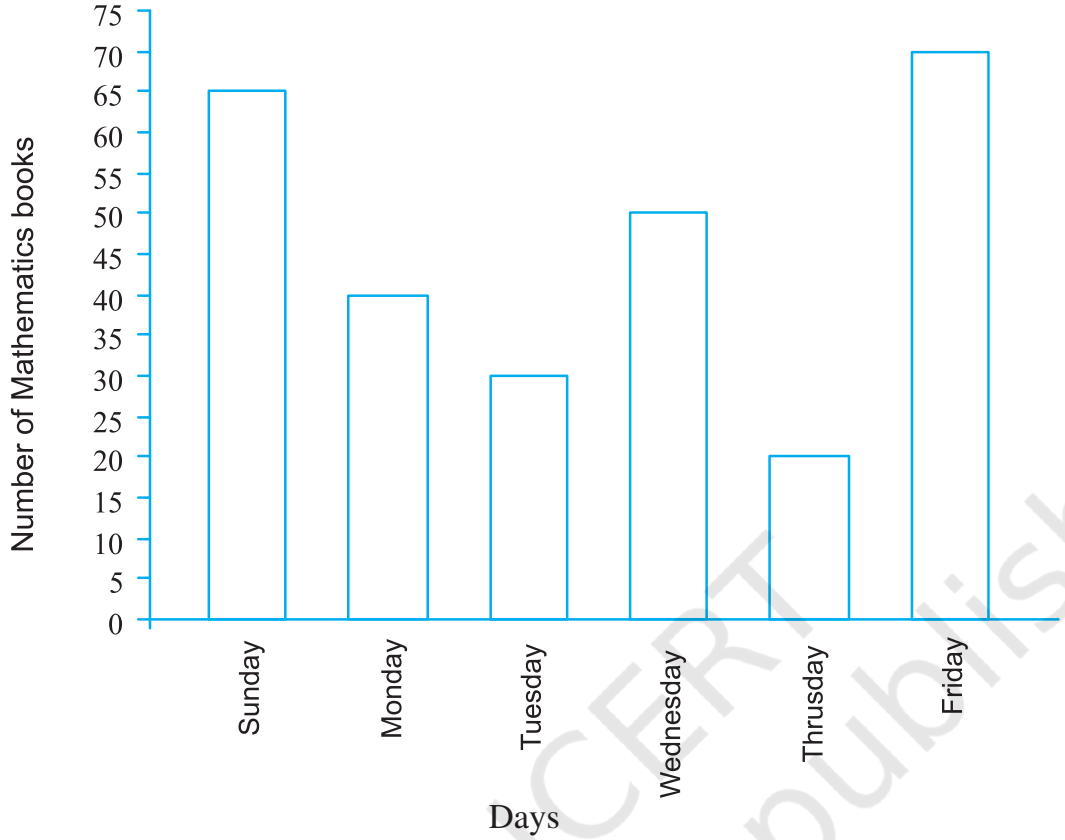
EXERCISE 9.4

1.

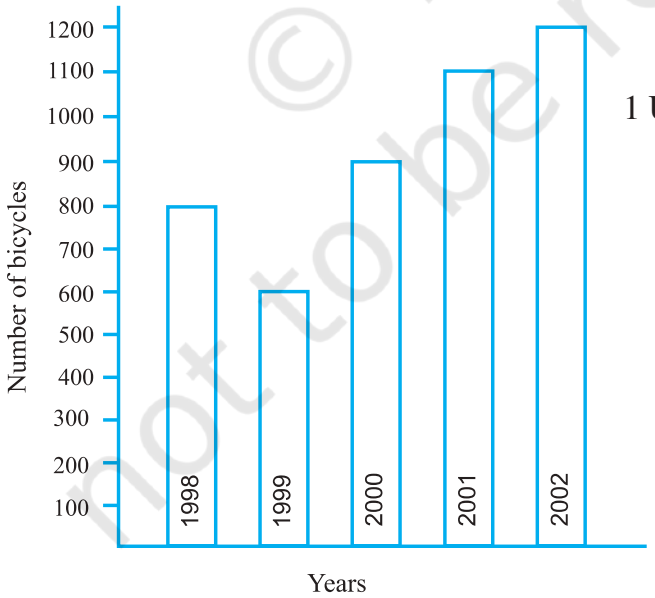


Reading story books.

2. 1 Unit length = 5 books



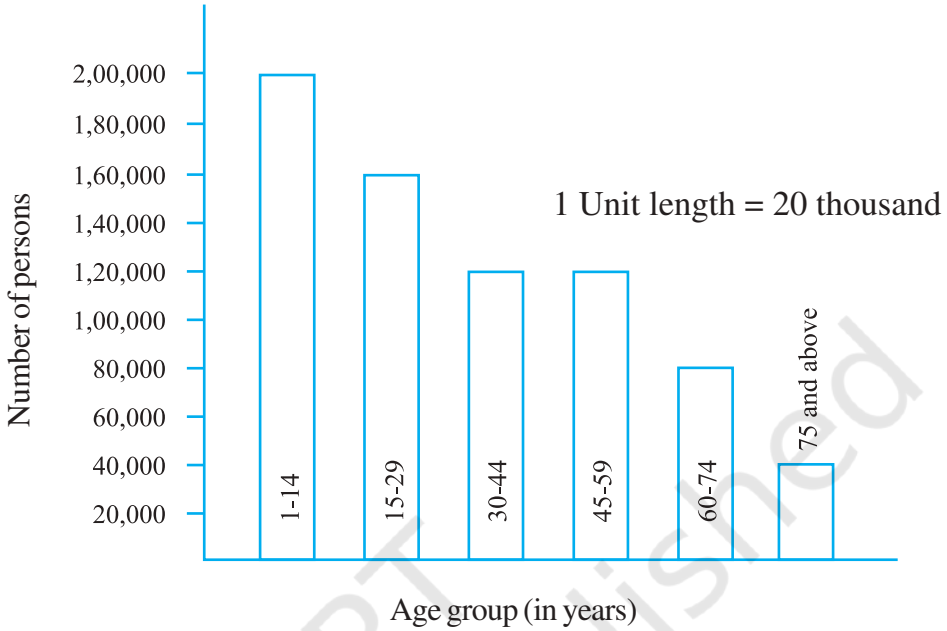
3.



1 Unit length = 100 bicycles

(a) 2002 (b) 1999

4.



(a) 30 – 44, 45 – 59

(b) 1 lakh 20 thousand

EXERCISE 10.1

1. (a) 12 cm (b) 133 cm (c) 60 cm (d) 20 cm (e) 15 cm (f) 52 cm **2.** 100 cm or 1 m **3.** 7.5 m **4.** 106 cm

5. 9.6 km **6.** (a) 12 cm (b) 27 cm (c) 22 cm

7. 39 cm **8.** 48 m **9.** 5 m **10.** 20 cm

11. (a) 7.5 cm (b) 10 cm (c) 5 cm **12.** 10 cm

13. ₹ 20,000 **14.** ₹ 7200 **15.** Bulbul

16. (a) 100 cm (b) 100 cm (c) 100 cm (d) 100 cm
All the figures have same perimeter.

17. (a) 6 m (b) 10 m (c) Cross has greater perimeter

EXERCISE 10.2

1. (a) 9 sq units (b) 5 sq units (c) 4 sq units (d) 8 sq units (e) 10 sq units (f) 4 sq units (g) 6 sq units (h) 5 sq units (i) 9 sq units (j) 4 sq units (k) 5 sq units (l) 8 sq units (m) 14 sq units (n) 18 sq units

EXERCISE 10.3

1. (a) 12 sq cm (b) 252 sq cm (c) 6 sq km (d) 1.40 sq m

2. (a) 100 sq cm (b) 196 sq cm (c) 25 sq m

3. (c) largest area (b) smallest area
4. 6 m **5.** ₹ 8000 **6.** 3 sq m **7.** 14 sq m
8. 11 sq m **9.** 15 sq m
10. (a) 28 sq cm (b) 9 sq cm
11. (a) 40 sq cm (b) 245 sq cm (c) 9 sq cm
12. (a) 240 tiles (b) 42 tiles

EXERCISE 11.1

1. (a) $2n$ (b) $3n$ (c) $3n$ (d) $2n$ (e) $5n$
(f) $5n$ (g) $6n$
2. (a) and (d); The number of matchsticks required in each of them is 2
3. $5n$ **4.** $50b$ **5.** $5s$
6. t km **7.** $8r$, 64, 80 **8.** $(x - 4)$ years **9.** $l + 5$
10. $2x + 10$
11. (a) $3x + 1$, x = number of squares
(b) $2x + 1$, x = number of triangles

EXERCISE 11.2

1. $3l$ **2.** $6l$ **3.** $12l$ **4.** $d = 2r$
5. (a + b) + c = a + (b + c)

EXERCISE 11.3

2. (c), (d)
3. (a) Addition, subtraction, addition, subtraction
(b) Multiplication, division, multiplication
(c) Multiplication and addition, multiplication and subtraction
(d) Multiplication, multiplication and addition, multiplication and subtraction

4. (a) $p + 7$ (b) $p - 7$ (c) $7p$ (d) $\frac{p}{7}$
(e) $-m - 7$ (f) $-5p$ (g) $\frac{-p}{5}$ (h) $-5p$

5. (a) $2m + 11$ (b) $2m - 11$ (c) $5y + 3$ (d) $5y - 3$
(e) $-8y$ (f) $-8y + 5$ (g) $16 - 5y$ (h) $-5y + 16$

6. (a) $t + 4$, $t - 4$, $4t$, $\frac{t}{4}$, $\frac{4}{t}$, $4 - t$, $4 + t$ (b) $2y + 7$, $2y - 7$, $7y + 2$, ..., ...

EXERCISE 11.4

1. (a) (i) $y + 5$ (ii) $y - 3$ (iii) $6y$ (iv) $6y - 2$ (v) $3y + 5$
(b) $(3b - 4)$ metres (c) length = $5h$ cm, breadth = $5h - 10$ cm
(d) $s + 8$, $s - 7$, $4s - 10$ (e) $(5v + 20)$ km
2. (a) A book costs three times the cost of a notebook.
(b) Tony's box contains 8 times the marbles on the table.

(c) Total number of students in the school is 20 times that of our class.

(d) Jaggu's uncle is 4 times older than Jaggu and Jaggu's aunt is 3 years younger than his uncle.

(e) The total number of dots is 5 times the number of rows.

EXERCISE 11.5

1. (a) an equation with variable x (e) an equation with variable x

(f) an equation with variable x (h) an equation with variable n

(j) an equation with variable p (k) an equation with variable y

(o) an equation with variable x

2. (a) No (b) Yes (c) No (d) No

(e) No (f) Yes (g) No (h) No

(i) Yes (j) Yes (k) No (l) No

(m) No (n) No (o) No (p) No (q) Yes

3. (a) 12 (b) 8 (c) 10 (d) 14

(e) 4 (f) – 2

4. (a) 6 (b) 7 (c) 12 (d) 10

5. (i) 22 (ii) 16 (iii) 17 (iv) 11

EXERCISE 12.1

1. (a) 4 : 3 (b) 4 : 7

2. (a) 1 : 2 (b) 2 : 5

3. (a) 3 : 2 (b) 2 : 7 (c) 2 : 7

4. 3 : 4 **5.** 5, 12, 25, Yes

6. (a) 3 : 4 (b) 14 : 9 (c) 3 : 11 (d) 2 : 3

7. (a) 1 : 3 (b) 4 : 15 (c) 11 : 20 (d) 1 : 4

8. (a) 3 : 1 (b) 1 : 2

9. 17 : 550

10. (a) 115 : 216 (b) 101 : 115 (c) 101 : 216

11. (a) 3 : 1 (b) 16 : 15 (c) 5 : 12

12. 15 : 7 **13.** 20 ; 100 **14.** 12 and 8 **15.** ₹ 20 and ₹ 16

16. (a) 3 : 1 (b) 10 : 3 (c) 13 : 6 (d) 15 : 1

EXERCISE 12.2

1. (a) Yes (b) No (c) No (d) No

(e) Yes (f) Yes

2. (a) T (b) T (c) F (d) T

(e) F (f) T

3. (a) T (b) T (c) T (d) T (e) F

4. (a) Yes, Middle Terms – 1 m, ₹ 40; Extreme Terms – 25 cm, ₹ 160

(b) Yes, Middle Terms – 65 litres, 6 bottles; Extreme Terms – 39 litres, 10 bottles

(c) No.

(d) Yes, Middle Terms – 2.5 litres, ₹ 4 ; Extreme Terms – 200 ml, ₹ 50

EXERCISE 12.3

1. ₹ 1,050 **2.** ₹ 9,000 **3.** 64.4 cm

4. (a) ₹ 146.40 (b) 10 kg

5. 5 degrees **6.** ₹ 60, 000 **7.** 24 bananas **8.** 5 kg

9. 300 litres **10.** Manish **11.** Anup

EXERCISE 13.1

1. Four examples are the blackboard, the table top, a pair of scissors, the computer disc etc.

2. The line l_2

3. Except (c) all others are symmetric.

EXERCISE 13.2

1. (a) 4 (b) 4 (c) 4 (d) 1

(e) 6 (f) 6 (g) 0 (h) 0 (i) 5

3. Number of lines of symmetry are :

Equilateral triangle – 3; Square – 4; Rectangle – 2; Isosceles triangle – 1; Rhombus – 2; Circle – countless.

4. (a) Yes; an isosceles triangle. (b) No.

(c) Yes; an equilateral triangle. (d) Yes; a scalene triangle.

7. (a) A,H,I,M,O,T,U,V,W,X,Y (b) B, C, D, E, H, I, K, O, X

(c) F, G, J, L, N, P, Q, R, S, Z

EXERCISE 13.3

1. Number of lines of symmetry to be marked :

(a) 4 (b) 1 (c) 2 (d) 2

(e) 1 (f) 2

Note