

Catalog

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ANSWERS

EXERCISE 1.1

- | | |
|--------------------|---|
| 1. (a) Ten | 2. (a) 73,75,307 |
| (b) Ten | (b) 9,05,00,041 |
| (c) Ten | (c) 7,52, 21,302 |
| (d) Ten | (d) 58,423,202 |
| (e) Ten | (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 | 2. (a) 5,000 ; 5,090 (b) 61,100 ; 61,130 |
| (c) 16,000 | (c) 7,800 ; 7,840 |
| (d) 7,000 | (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 | |



MATHEMATICS

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) \rightarrow (c) (ii) \rightarrow (a) (iii) \rightarrow (b)

EXERCISE 2.3

1. (a) 2. Yes
 3. Both of them will be 'I'
 4. (a) 73,528 (b) 54,42,437 (c) 20,600 (d) 5,34,375 (e) 17,640
 5. $123456 \times 8 + 6 = 987654$
 $1234567 \times 8 + 7 = 9876543$

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) \rightarrow (b) (ii) \rightarrow (d) (iii) \rightarrow (a)
 (iv) \rightarrow (f) (v) \rightarrow (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.)



ANSWERS

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

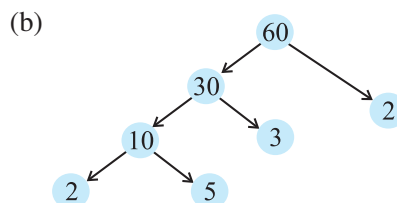
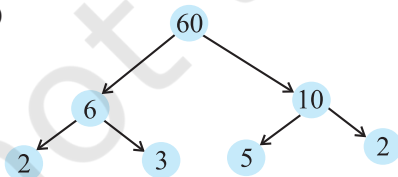
2. Divisible by 4: (a), (b), (c), (d), (f), (g), (h), (i)
 Divisible by 8: (b), (d), (f), (h)
3. (a), (f), (g), (i) 4. (a), (b), (d), (e), (f)
5. (a) 2 and 8 (b) 0 and 9 6. (a) 8 (b) 6

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)





MATHEMATICS

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: \overline{DE} , \overline{DO} , \overline{DB} , \overline{EO} etc.
(c) Many answers are possible. Some are: \overline{DB} , \overline{DE} , \overline{OB} , \overline{OE} , \overline{EB} etc.
(d) Many answers are possible. Some are: \overline{DE} , \overline{DO} , \overline{EO} , \overline{OB} , \overline{EB} etc.
2. \overline{AB} , \overline{AC} , \overline{AD} , \overline{BA} , \overline{BC} , \overline{BD} , \overline{CA} , \overline{CB} , \overline{CD} , \overline{DA} , \overline{DB} , \overline{DC} .
3. (a) Many answers. One answer is \overline{AE} .
(b) Many answers. One answer is \overline{AE} .
(c) \overline{CO} or \overline{OC}
(d) Many answers are possible. Some are, \overline{CO} , \overline{AE} and \overline{AE} , \overline{EF} .

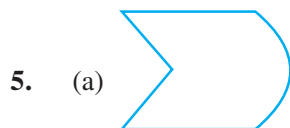


ANSWERS

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



- (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) $\triangle ABC$, $\triangle ABD$, $\triangle ADC$.
 (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) $\triangle ABC$, $\triangle ABD$

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.



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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) \rightarrow (c); (ii) \rightarrow (d); (iii) \rightarrow (a); (iv) \rightarrow (e); (v) \rightarrow (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: $23^\circ, 89^\circ$; (b) Obtuse: $91^\circ, 179^\circ$.
7. (a) acute (b) obtuse (if the angle is less than 180°)
(c) straight (d) acute (e) an obtuse angle.
9. $90^\circ, 30^\circ, 180^\circ$
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 $30^\circ - 60^\circ - 90^\circ$ set square; the other is a $45^\circ - 45^\circ - 90^\circ$ 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) \rightarrow (e); (ii) \rightarrow (g); (iii) \rightarrow (a); (iv) \rightarrow (f); (v) \rightarrow (d);
(vi) \rightarrow (c); (vii) \rightarrow (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.)



ANSWERS

EXERCISE 5.7

- (a) T (b) T (c) T (d) T (e) F (f) F
- (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.
- A square is a 'regular' quadrilateral

EXERCISE 5.8

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

EXERCISE 5.9

- (a) \rightarrow (ii); (b) \rightarrow (iv); (c) \rightarrow (v); (d) \rightarrow (iii); (e) \rightarrow (i).
- (a), (b) and (c) are cuboids; (d) is a cylinder; (e) is a sphere.

EXERCISE 6.1

- (a) Decrease in weight (b) 30 km south (c) 80 m west
(d) Gain of ₹ 700 (e) 100 m below sea level
- (a) +2000 (b) -800 (c) +200 (d) -700
- (a) +5



(b) -10



(c) +8



(d) -1



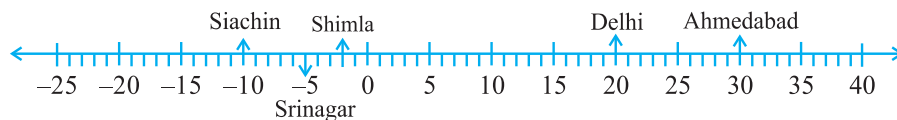
(e) -6





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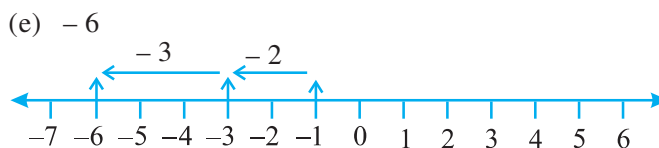
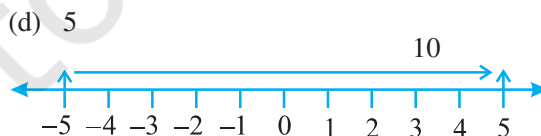
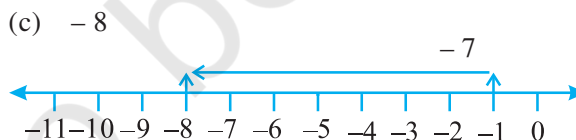
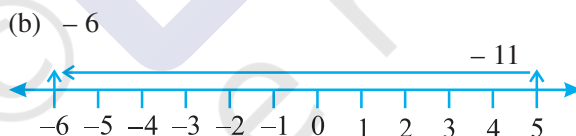
4. (a) F (b) negative integer (c) $B \rightarrow +4, E \rightarrow -10$
 (d) E (e) D, C, B, A, O, H, G, F, E
5. (a) $-10^\circ\text{C}, -2^\circ\text{C}, +30^\circ\text{C}, +20^\circ\text{C}, -5^\circ\text{C}$
 (b)



- (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

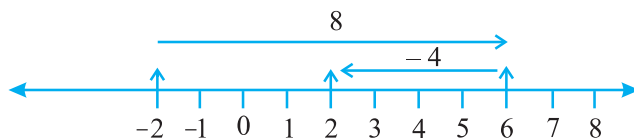
1. (a) 8 (b) 0 (c) -4 (d) -5
2. (a) 3





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(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

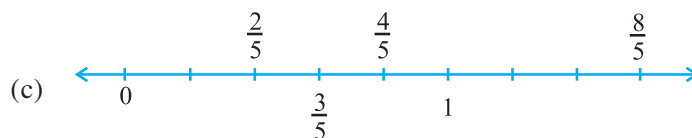
1. (i) $\frac{2}{4}$ (ii) $\frac{8}{9}$ (iii) $\frac{4}{8}$ (iv) $\frac{1}{4}$ (v) $\frac{3}{7}$ (vi) $\frac{3}{12}$
 (vii) $\frac{10}{10}$ (viii) $\frac{4}{9}$ (ix) $\frac{4}{8}$ (x) $\frac{1}{2}$
 3. Shaded portions do not represent the given fractions.
 4. $\frac{8}{24}$ 5. $\frac{40}{60}$
 6. (a) 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)



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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

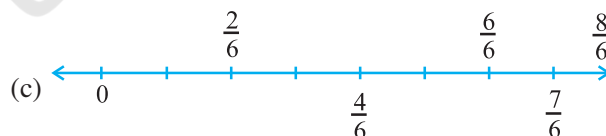
7. (a) $\frac{4}{5}$ (b) $\frac{5}{2}$ (c) $\frac{6}{7}$ (d) $\frac{3}{13}$ (e) $\frac{1}{4}$

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) $\frac{3}{9} < \frac{4}{9} < \frac{6}{9} < \frac{8}{9}$



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



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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.



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4. (a) $\frac{4}{10} (= \frac{2}{5})$ (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) $\frac{3}{6} (= \frac{1}{2})$ (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) $\begin{array}{|c|c|c|} \hline \frac{2}{3} & \frac{4}{3} & 2 \\ \hline \frac{1}{3} & \frac{2}{3} & 1 \\ \hline \frac{1}{3} & \frac{2}{3} & 1 \\ \hline \end{array}$ (b) $\begin{array}{|c|c|c|} \hline \frac{1}{2} & \frac{1}{3} & \frac{5}{6} \\ \hline \frac{1}{3} & \frac{1}{4} & \frac{7}{12} \\ \hline \frac{1}{6} & \frac{1}{12} & \frac{1}{4} \\ \hline \end{array}$

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

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

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



ANSWERS

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

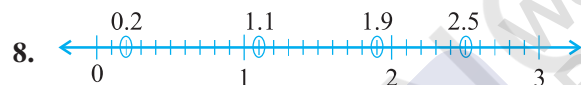
(e) 16.2 cm (f) 8.3 cm

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



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



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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		7
	5		6
	6		7
	7		5
	8		4
	9		3

ANSWERS

- (a) 12 (b) 8

2.	Sweets	Tally marks	Number of students
	Ladoo		11
	Barfi		3
	Jalebi		7
	Rasgulla		9
			30

- (b) Ladoo

3.	Numbers	Tally marks	How many times?
	1		7
	2		6
	3		5
	4		4
	5		11
	6		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



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2.

	- 100 students
1996	
1998	
2000	
2002	
2004	

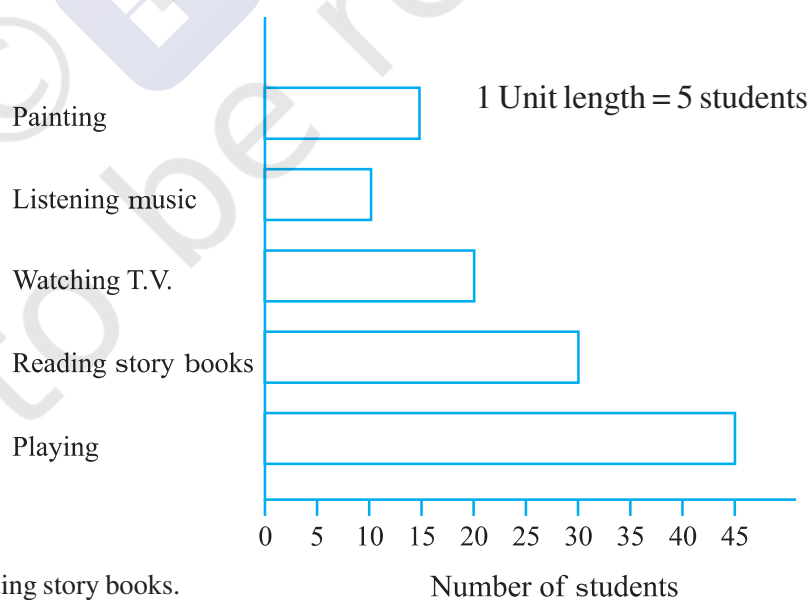
- A (a) 6 (b) 5 complete and 1 incomplete
B Second

EXERCISE 9.3

- (a) 2002 (b) 1998
- (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
- (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.



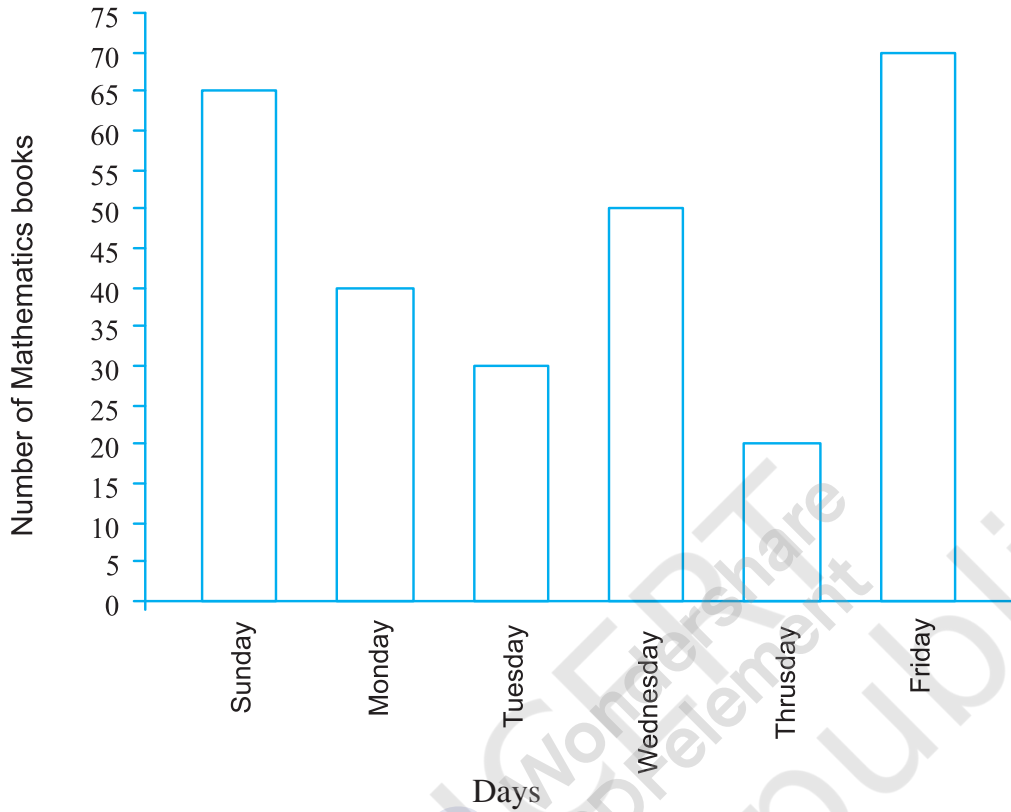
Reading story books.

Number of students

ANSWERS

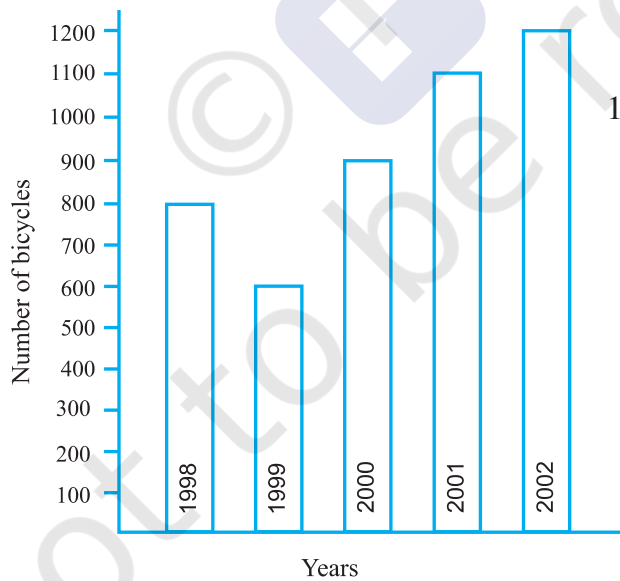
2.

1 Unit length = 5 books



3.

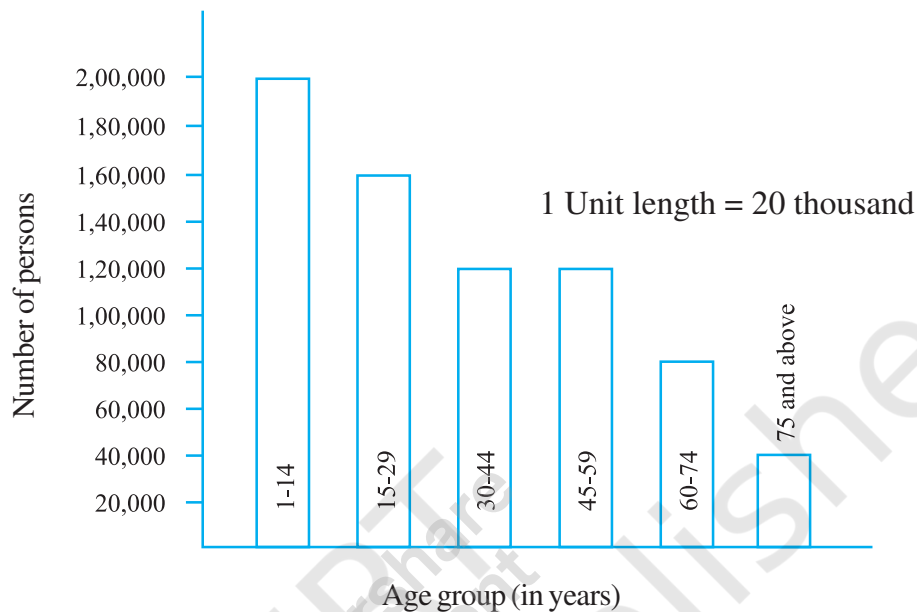
1 Unit length = 100 bicycles





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4. (a) 2002 (b) 1999



- (a) 30 – 44, 45 – 59
(b) 1 lakh 20 thousand

EXERCISE 10.1

- (a) 12 cm (b) 133 cm (c) 60 cm (d) 20 cm (e) 15 cm
(f) 52 cm
- 100 cm or 1 m
- 7.5 m
- 106 cm
- 9.6 km
- (a) 12 cm (b) 27 cm (c) 22 cm
- 39 cm
- 48 m
- 5 m
- 20 cm
- (a) 7.5 cm (b) 10 cm (c) 5 cm
- 10 cm
- ₹ 20,000
- ₹ 7200
- Bulbul
- (a) 100 cm (b) 100 cm (c) 100 cm (d) 100 cm
All the figures have same perimeter.
- (a) 6 m (b) 10 m (c) Cross has greater perimeter

EXERCISE 10.2

- (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

- (a) 12 sq cm (b) 252 sq cm (c) 6 sq km (d) 1.40 sq m
- (a) 100 sq cm (b) 196 sq cm (c) 25 sq m



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- (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

- (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
- (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
- (a) 12 (b) 8 (c) 10 (d) 14
 (e) 4 (f) -2
- (a) 6 (b) 7 (c) 12 (d) 10
- (i) 22 (ii) 16 (iii) 17 (iv) 11

EXERCISE 12.1

- (a) 4 : 3 (b) 4 : 7
- (a) 1 : 2 (b) 2 : 5
- (a) 3 : 2 (b) 2 : 7 (c) 2 : 7
- 3 : 4 5. 5, 12, 25, Yes
- (a) 3 : 4 (b) 14 : 9 (c) 3 : 11 (d) 2 : 3
- (a) 1 : 3 (b) 4 : 15 (c) 11 : 20 (d) 1 : 4
- (a) 3 : 1 (b) 1 : 2
- 17 : 550
- (a) 115 : 216 (b) 101 : 115 (c) 101 : 216
- (a) 3 : 1 (b) 16 : 15 (c) 5 : 12
- 15 : 7 13. 20 ; 100 14. 12 and 8 15. ₹ 20 and ₹ 16
- (a) 3 : 1 (b) 10 : 3 (c) 13 : 6 (d) 15 : 1

EXERCISE 12.2

- (a) Yes (b) No (c) No (d) No
 (e) Yes (f) Yes
- (a) T (b) T (c) F (d) T
 (e) F (f) T
- (a) T (b) T (c) T (d) T (e) F
- (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



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- (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



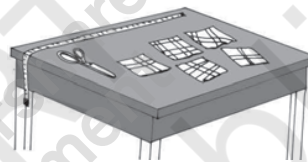
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Note



BRAIN-TEASERS

1. From a basket of mangoes when counted in twos there was one extra, counted in threes there were two extra, counted in fours there were three extra, counted in fives there were four extra, counted in sixes there were five extra. But counted in sevens there were no extra. Atleast how many mangoes were there in the basket?
2. A boy was asked to find the LCM of 3, 5, 12 and another number. But while calculating, he wrote 21 instead of 12 and yet came with the correct answer. What could be the fourth number?
3. There were five pieces of cloth of lengths 15 m, 21 m, 36 m, 42 m, 48 m. But all of them could be measured in whole units of a measuring rod. What could be the largest length of the rod?
4. There are three cans. One of them holds exactly 10 litres of milk and is full. The other two cans can hold 7 litres and 3 litres respectively. There is no graduation mark on the cans. A customer asks for 5 litres of milk. How would you give him the amount he ask? He would not be satisfied by eye estimates.
5. Which two digit numbers when added to 27 get reversed?
6. Cement mortar was being prepared by mixing cement to sand in the ratio of 1:6 by volume. In a cement mortar of 42 units of volume, how much more cement needs to be added to enrich the mortar to the ratio 2:9?
7. In a solution of common salt in water, the ratio of salt to water was 30:70 as per weight. If we evaporate 100 grams of water from one kilogram of this solution, what will be the ratio of the salt to water by weight?
8. Half a swarm of bees went to collect honey from a mustard field. Three fourth of the rest went to a rose garden. The rest ten were still undecided. How many bees were there in all?



9. Fifteen children are sitting in a circle. They are asked to pass a handkerchief to the child next to the child immediately after them.

The game stops once the handkerchief returns to the child it started from. This



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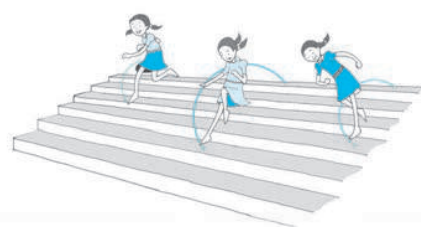
can be written as follows : $1 \rightarrow 3 \rightarrow 5 \rightarrow 7 \rightarrow 9 \rightarrow 11 \rightarrow 13 \rightarrow 15 \rightarrow 2 \rightarrow 4 \rightarrow 6 \rightarrow 8 \rightarrow 10 \rightarrow 12 \rightarrow 14 \rightarrow 1$. Here, we see that every child gets the handkerchief.

- (i) What would happen if the handkerchief were passed to the left leaving two children in between? Would every child get the handkerchief?
- (ii) What if we leave three children in between? What do you see?

In which cases every child gets the handkerchief and in which cases not?

Try the same game with 16, 17, 18, 19, 20 children. What do you see?

10. Take two numbers 9 and 16. Divide 9 by 16 to get the remainder. What is the remainder when 2×9 is divided by 16, 3×9 divided by 16, 4×9 divided by 16, 5×9 divided by 16... 15×9 divided by 16. List the remainders. Take the numbers 12 and 14. List the remainders of 12, 12×2 , 12×3 , 12×4 , 12×5 , 12×6 , 12×7 , 12×8 , 12×9 , 12×10 , 12×11 , 12×12 , 12×13 when divided by 14. Do you see any difference between above two cases?
11. You have been given two cans with capacities 9 and 5 litres respectively. There is no graduation marks on the cans nor is eye estimation possible. How can you collect 3 litres of water from a tap? (You are allowed to pour out water from the can). If the cans had capacities 8 and 6 litres respectively, could you collect 5 litres?
12. The area of the east wall of an auditorium is 108 sq m, the area of the north wall is 135 sq m and the area of the floor is 180 sq m. Find the height of the auditorium.
13. If we subtract 4 from the digit at the units place of a two digit number and add 4 to the digit at the tens place then the resulting number is doubled. Find the number.
14. Two boatmen start simultaneously from the opposite shores of a river and they cross each other after 45 minutes of their starting from the respective shores. They rowed till they reached the opposite shore and returned immediately after reaching the shores. When will they cross each other again?
15. Three girls are climbing down a staircase. One girl climbs down two steps at one go. The second girl three steps at one go and the third climbs down four steps. They started together from the beginning of the staircase

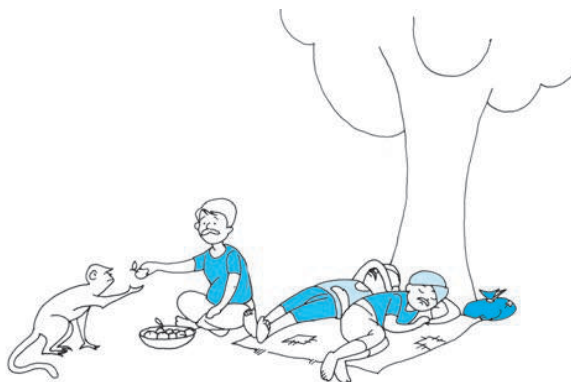


BRAIN-TEASERS

leaving their foot marks. They all came down in complete steps and had their foot marks together at the bottom of the staircase. In how many steps would there be only one pair of foot mark?

Are there any steps on which there would be no foot marks.

16. A group of soldiers was asked to fall in line making rows of three. It was found that there was one soldier extra. Then they were asked to stand in rows of five. It was found there were left 2 soldiers. They were asked to stand in rows of seven. Then there were three soldiers who could not be adjusted. At least how many soldiers were there in the group?
17. Get 100 using four 9's and some of the symbols like +, -, ×, ÷, etc.
18. How many digits would be in the product $2 \times 2 \times 2 \dots \times 2$ (30 times)?
19. A man would be 5 minutes late to reach his destination if he rides his bike at 30 km. per hour. But he would be 10 minutes early if he rides at the speed of 40 km per hour. What is the distance of his destination from where he starts?
20. The ratio of speeds of two vehicles is 2:3. If the first vehicle covers 50 km in 3 hours, what distance would the second vehicle covers in 2 hours?
21. The ratio of income to expenditure of Mr. Natarajan is 7:5. If he saves ₹ 2000 a month, what could be his income?
22. The ratio of the length to breadth of a lawn is 3:5. It costs ₹ 3200 to fence it at the rate of ₹ 2 a metre. What would be the cost of developing the lawn at the rate of ₹10 per square metre.
23. If one counts one for the thumb, two for the index finger, three for the middle finger, four for the ring finger, five for the little finger and continues counting backwards, six for the ring finger, seven for the middle finger, eight for the index finger, 9 for the thumb, ten for the index finger, eleven for the middle finger, twelve for the ring finger, thirteen for the little finger, fourteen for the ring finger and so on. Which finger will be counted as one thousand?
24. Three friends plucked some mangoes from a mango grove and collected them together in a pile and took nap after that. After some time, one of the friends woke up and divided the mangoes into three equal numbers. There was one





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mango extra. He gave it to a monkey nearby, took one part for himself and slept again. Next the second friend got up unaware of what has happened, divided the rest of the mangoes into three equal shares. There was an extra mango. He gave it to the monkey, took one share for himself and slept again. Next the third friend got up not knowing what happened and divided the mangoes into three equal shares. There was an extra mango. He gave it to the monkey, took one share for himself and went to sleep again. After some time, all of them got up together to find 30 mangoes. How many mangoes did the friends pluck initially?

25. **The peculiar number**

There is a number which is very peculiar. This number is three times the sum of its digits. Can you find the number?

26. Ten saplings are to be planted in straight lines in such way that each line has exactly four of them.

27. What will be the next number in the sequence?

(a) 1, 5, 9, 13, 17, 21, ...

(b) 2, 7, 12, 17, 22, ...

(c) 2, 6, 12, 20, 30, ...

(d) 1, 2, 3, 5, 8, 13, ...

(e) 1, 3, 6, 10, 15, ...

28. Observe the pattern in the following statement:

$$31 \times 39 = 13 \times 93$$

The two numbers on each side are co-prime and are obtained by **reversing the digits** of respective numbers. Try to write some more pairs of such numbers.



ANSWERS

1. 119

2. 28

3. 3 m

4. The man takes an empty vessel other than these.

With the help of 3 litres can he takes out 9 litres of milk from the 10 litres can and pours it in the extra can. So, 1 litre milk remains in the 10 litres can. With the help of 7 litres can he takes out 7 litres of milk from the extra can and pours it in the 10 litres can. The 10 litres can now has $1 + 7 = 8$ litres of milk.



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With the help of 3 litres can he takes out 3 litres milk from the 10 litres can. The 10 litres can now has $8 - 3 = 5$ litres of milk, which he gives to the customer.

5. 14, 25, 36, 47, 58, 69
6. 2 units
7. 1 : 2
8. 80
9. (i) No, all children would not get it.
(ii) All would get it.
10. 9, 2, 11, 4, 13, 6, 15, 8, 1, 10, 3, 12, 5, 14, 7.
12, 10, 8, 6, 4, 2, 0, 12, 10, 8, 6, 4.
11. Fill the 9 litres can. Remove 5 litres from it using the 5 litres can. Empty the 5 litres can. Pour 4 litres remaining in the 9 litres can to the 5 litres can.

Fill the 9 litres can again. Fill the remaining 5 litres can from the water in it. This leaves 8 litres in the 9 litres can. Empty the 5 litres can. Fill it from the 9 litres can. You now have 3 litres left in the 9 litres can.
12. Height = 9m
13. 36
14. 90 minutes
15. Steps with one pair of foot marks – 2, 3, 9, 10
Steps with no foot marks – 1, 5, 7, 11
16. 52
17. $99 + \frac{9}{9}$
18. 10
19. 30 km
20. 50 km
21. ₹ 7000 per month



MATHEMATICS

22. ₹ 15,00,000

23. Index finger

24. 106 mangoes

25. 27

26. One arrangement could be



27. (a) 25 (b) 27 (c) 42 (d) 21 (e) 21

28. One such pair is $13 \times 62 = 31 \times 26$.

