

Exercise 1.3

1. $\{1,2,3,4,\dots\}$, $\{1,2,3,4,\dots\}$, $\{2,4,6,8,\dots\}$, yes. 2. yes
 3.(i) 12 (ii) $4a^2 - 10a + 6$ (iii) 0 (iv) $x^2 - 7x + 12$
 4.(i) (a) 9 (b) 6 (c) 6 (d) 0
 (ii) 9.5 (iii) (a) $\{x / 0 \leq x \leq 10, x \in R\}$ (b) $\{y / 0 \leq y \leq 9, y \in R\}$
 (iv) 5 5. 2 6.(i) -2 (ii) $\frac{3}{2}$ (iii) 3 (iv) $\frac{1}{2}$
 7. $4x^3 - 96x^2 + 576x$ 8. 1 9. $500t$
 10.(i) Yes (ii) 0.9, 24.5 (iii) 60.5 inches (iv) 32 cms

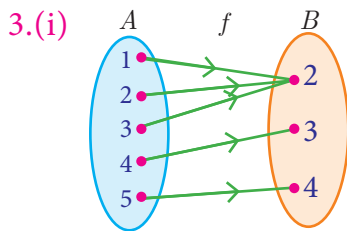
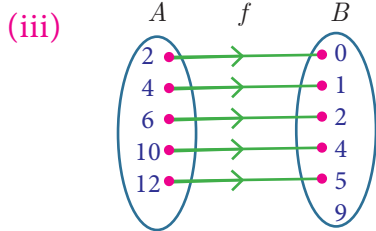
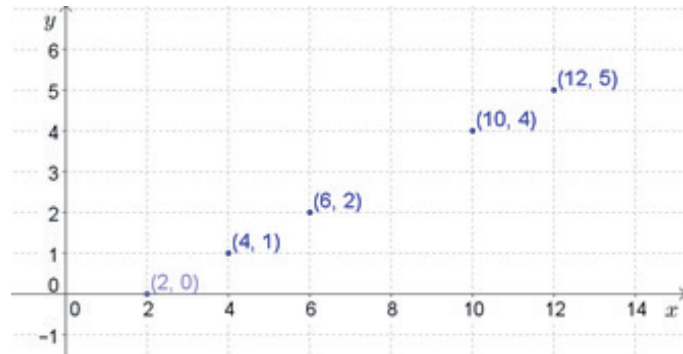
Exercise 1.4

- 1.(i) Not a function (ii) function (iii) Not a function (iv) function
 2.(i) $\{(2,0), (4,1), (6,2), (10,4), (12,5)\}$

(ii)

x	2	4	6	10	12
$f(x)$	0	1	2	4	5

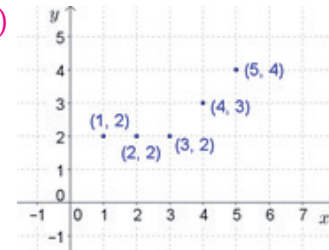
(iv)



(ii)

x	1	2	3	4	5
$f(x)$	2	2	2	3	4

(iii)



- 6.(i) $\{1, 8, 27, 64\}$ (ii) one-one and into function
 7.(i) Bijective function (ii) Not bijective function 8. $a = -1$ or $1, b = 1$
 9.(i) 5 (ii) 2 (iii) -2.5 (iv) 1
 10.(i) 2 (ii) 10 (iii) 178 (iv) $\frac{-9}{17}$
 11. Yes 12.(i) $32^\circ F$ (ii) $82.4^\circ F$ (iii) $14^\circ F$
 (iv) $100^\circ C$ (v) -40°

Exercise 1.5

- 1.(i) $x^2 - 6, (x - 6)^2$; not equal (ii) $\frac{2}{2x^2 - 1}, \frac{8}{x^2} - 1$; not equal
 (iii) $\frac{3-x}{3}, \frac{9-x}{3}$; not equal (iv) $x - 1, x - 1$; equal (v) $4x^2 + 8x + 3, 4x^2$; not equal
 2.(i) -5 (ii) $\frac{-5}{3}$ 4. $a = \pm 2$
 5. $\{y \mid y = 2x^2 + 1, x \in \mathbb{N}\}; \{y \mid y = (2x + 1)^2, x \in \mathbb{N}\}$ 6.(i) $x^4 - 2x^2$
 (ii) $[x^4 - 2x^2]^2 - 1$ 7. f is one-one, g is not one-one, $f \circ g$ is not one-one 9. $-4x - 1$

Exercise 1.6

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
(C)	(C)	(A)	(B)	(C)	(D)	(C)	(A)	(C)	(C)	(A)	(D)	(C)	(B)	(D)

Unit exercise-1

- 1, 2 and $-5, 1$
- $\{-1, 0, 1\}, \{(-1, -1), (-1, 1), (0, -1), (0, 0), (1, -1), (1, 0), (1, 1)\}$
- (i) 4 (ii) $\sqrt{2}$ (iii) \sqrt{a}
- $\{(9, 3), (10, 5), (11, 11), (12, 3), (13, 13), (14, 7), (15, 5), (16, 2), (17, 17)\}, \{2, 3, 5, 7, 11, 13, 17\}$
- $-1 \leq x \leq 1$ 9.(i) $\frac{-5}{6}$ (ii) $2(x+1)$ 10.(i) $R - \{9\}$
(ii) R (iii) $[2, \infty)$ (iv) R

Exercise 2.1

- 2, 5, 8, 11, ... 2. 25, 7 6.(i) 4 (ii) 51
(iii) 144 (iv) 6 7. 174 8. 2, -1 9. 6

Exercise 2.2

- Even number 2. No value 3. 10101 4. 9, 3
5. 2, 3, 5, 7 and 3, 4, 2, 1 6. 2040, 34 7. 999720 8. 3647 9. 2520

Exercise 2.3

- (i) 7 (ii) 5 (iii) 2 (iv) 7 (v) 2
2. 3 3. 2, 8, 14, ... 4. 8, 19, 30, ... 5. 11 a.m
6. 8 a.m 7. Friday 9. 2 10. 6 a.m, Monday

Exercise 2.4

- (i) 216, 648, 1944 (ii) $-7, -11, -15$ (iii) $\frac{4}{25}, \frac{5}{36}, \frac{6}{49}$ 2.(i) $-1, 6, 25, 62$
(ii) 2, -6, 12, -20 (iii) $-4, 2, 12, 26$ 3.(i) $n^2 + 1$ (ii) $\frac{n-1}{n}$
(iii) $5n - 2$ 4.(i) $\frac{15}{4}, \frac{13}{3}$ (ii) $-12, -117$ 5. $\frac{63}{11}, \frac{225}{31}$ 6. 1, 1, 3, 7, 17, 41

Exercise 2.5

- (i) A.P (ii) not an A.P (iii) A.P (iv) A.P
(v) not an A.P 2.(i) 5, 11, 17, ... (ii) 7, 2, -3, ... (iii) $\frac{3}{4}, \frac{5}{4}, \frac{7}{4}, \dots$
3.(i) $-1, 2$ (ii) $-3, -7$ 4. -83 5. 15
6. 93, 99 8. 4 9. 3, 17, 31 10. 78
11. 2, 9, 16 12. 5:7 13. $-3^\circ\text{C}, 0^\circ\text{C}, 3^\circ\text{C}, 6^\circ\text{C}, 9^\circ\text{C}$ 14. 31 years

Exercise 2.6

- (i) 3240 (ii) 999 (iii) 721 2. 20 3. 1540
5. 612.5 6. 50625 7. 168448 8.(i) ₹ 45750 (ii) ₹ 5750 9. 20 months
10.(i) 42 (ii) 2130 12. $\frac{6}{a+b}(24a - 13b)$

Exercise 2.7

- (i) G.P (ii) not a G.P (iii) G.P (iv) G.P (v) G.P
(vi) not a G.P (vii) G.P 2.(i) 6, 18, 54 (ii) $\sqrt{2}, 2, 2\sqrt{2}$

- (iii) 1000,400,160 3. 1 4. -18 5.(i) 12 (ii) 7 6. $5 \times (3^{11})$
 7. 3072 9. $\frac{9}{2}, 3, 2$ (or) $2, 3, \frac{9}{2}$ 10. ₹ 76577 11. ₹23820, ₹24040

Exercise 2.8

- 1.(i) $\frac{25}{8} \left[1 - \left(-\frac{3}{5} \right)^n \right]$ (ii) $\frac{1024}{3} \left[1 - \left(\frac{1}{4} \right)^n \right]$ 2. 1820 3. 12
 4.(i) $\frac{27}{2}$ (ii) 63 5. $\frac{1}{4}$ 6.(i) $\frac{4}{9}n - \frac{4 \left[1 - \left(\frac{1}{10} \right)^n \right]}{81}$
 (ii) $\frac{10(10^n - 1)}{27} - \frac{n}{3}$ 7. 3069 8. ₹ 174760 9. $\frac{41}{333}$

Exercise 2.9

- 1.(i) 1830 (ii) 1584 (iii) 3003 (iv) 1240 (v) 3256
 (vi) 42075 (vii) 1296 2. 105625 3. 210
 4. 15 5. 9 6. 4615 cm^2 7.(i) $4n^3 + 3n^2$ (ii) 2240

Exercise 2.10

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
(C)	(A)	(B)	(C)	(D)	(A)	(D)	(C)	(A)	(C)	(C)	(D)	(B)	(B)	(C)

Unit exercise-2

- 2.(i) 35 litres (ii) 5 (iii) 3 3. 1 6. -78
 8. ₹1200 9. $\sqrt{2}, \sqrt{6}, 3\sqrt{2}, \dots$ 10. ₹27636

Exercise 3.1

- 1.(i) 2, -1, 4 (ii) $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}$ (iii) 35, 30, 25
 2.(i) infinitely many solution (ii) no solution (iii) unique solution
 3. 24 years, 51 years, 84 years 4. 137 5. 7, 3, 2

Exercise 3.2

- 1.(i) $x^2 + 2x - 3$ (ii) $x^2 + 1$ (iii) $x(x^2 + 4x + 4)$ (iv) $3(x^2 + 1)$
 2.(i) $8x^3y^2$ (ii) $-36a^3b^2c$ (iii) $-48m^2n^2$ (iv) $(p-1)(p-2)(p+2)$
 (v) $4(x+3)(2x+1)(x-3)$ (vi) $2^3x^2(2x-3y)^3(4x^2+6xy+9y^2)$

Exercise 3.3

- 1.(i) $7xy, 105x^2y^2$ (ii) $(x+1), (x-1)(x+1)(x^2+x+1)(x^2-x+1)$
 (iii) $x(x+y), xy(x+y)$ 2.(i) $(a+6)(a-2)(a-3)$ (ii) $x(x-3a)^2(x^2+3ax+9a^2)$
 3.(i) $4x^2(x-1)$ (ii) $x^2 - xy + y^2$ 4. (i) $(a+2)(a-7)$ (ii) $(x^2 - y^2)(x^2 + xy + y^2)$

Exercise 3.4

- 1.(i) $\frac{x-1}{x}$ (ii) $\frac{x-9}{x-2}$ (iii) $\frac{9}{x-1}$ (iv) $\frac{p+5}{2p(p-4)}$
 2.(i) -5, 5 (ii) 2, 3 (iii) 1 (iv) 0, -3, 2

Exercise 3.5

1.(i) $\frac{3x^3z}{5y^3}$ (ii) $p + 4$ (iii) $\frac{3t^2}{4}$ 2.(i) $\frac{3x - 4y}{2x - 5}$ (ii) $\frac{x^2 + xy + y^2}{3(x + 2y)}$
 3.(i) -5 (ii) $\frac{b - 4}{b + 2}$ (iii) $\frac{3y}{x - 3}$ (iv) $\frac{4(2t - 1)}{3}$ 4. $\frac{4}{9}$ 5. $x^2 + 4x + 4$

Exercise 3.6

1.(i) $\frac{2x}{x - 2}$ (ii) $\frac{2x^2 + 2x - 7}{(x + 3)(x - 2)}$ (iii) $x^2 + xy + y^2$ 2.(i) $\frac{2(x - 2)}{x - 4}$ (ii) $\frac{1 - x}{1 + x}$
 3. $\frac{2x^3 + 1}{(x^2 + 2)^2}$ 4. $\frac{x + 1}{x^2 - 2x + 4}$ 5. $\frac{(4x^2 - 1)}{2(4x^2 + 1)}$ 7. 2 hrs 24 minutes 8. 30 kgs, 20 kgs

Exercise 3.7

1.(i) $2 \left| \frac{y^4 z^6}{x^2} \right|$ (ii) $4 \left| \frac{\sqrt{7x} + \sqrt{2}}{4x - 1} \right|$ (iii) $\frac{11}{9} \left| \frac{(a + b)^4 (x + y)^4}{(a - b)^6} \right|$ 2.(i) $|2x + 5|$
 (ii) $|3x - 4y + 5z|$ (iii) $|(x - 2)(7x + 1)(4x - 1)|$ (iv) $\frac{1}{6} |(4x + 3)(3x + 2)(x + 2)|$

Exercise 3.8

1. (i) $|x^2 - 6x + 3|$ (ii) $|2x^2 - 7x - 3|$ (iii) $|4x^2 + 1|$ (iv) $|11x^2 - 9x - 12|$
 2.(i) 49, -42 (ii) 144, 264 3.(i) 30, 9 (ii) 24, -32

Exercise 3.9

1.(i) $x^2 + 9x + 20 = 0$ (ii) $3x^2 - 5x + 12 = 0$ (iii) $2x^2 + 3x - 2 = 0$
 (iv) $x^2 + (2 - a)^2 x + (a + 5)^2 = 0$ 2.(i) -3, -28 (ii) -3, 0 (iii) $-\frac{1}{3}, -\frac{10}{3}$ (iv) $\frac{1}{3}, -\frac{4}{3}$

Exercise 3.10

1.(i) $-\frac{1}{4}, 2$ (ii) $-2, \frac{9}{2}$ (iii) -2, 9 (iv) $-\sqrt{2}, \frac{-5}{\sqrt{2}}$ (v) $\frac{1}{4}, \frac{1}{4}$ 2. 6

Exercise 3.11

1.(i) $\frac{2}{3}, \frac{2}{3}$ (ii) -1, 3 2.(i) $2, \frac{1}{2}$ (ii) $\frac{3 + \sqrt{3}}{\sqrt{2}}, \frac{3 - \sqrt{3}}{\sqrt{2}}$
 (iii) -1, $\frac{23}{3}$ (iv) $\frac{a + b}{6}, \frac{a - b}{6}$ 3. 3.75 seconds

Exercise 3.12

1. 5, $-\frac{1}{5}$ 2. 1.5 m 3. 45 km/hr 4. 20 years, 10 years
 5. Yes, 12 m, 16 m 6. 72 7. 28 m, 42 m 8. 2 m 9. 7 cm

Exercise 3.13

1.(i) Real and unequal (ii) Real and unequal (iii) Not real
 (iv) Real and equal (v) Real and equal 2.(i) 2, 3 (ii) $1, \frac{1}{9}$

Exercise 3.14

1.(i) $\frac{(\alpha + \beta)^2 - 2\alpha\beta}{3\alpha\beta}$ (ii) $\frac{\alpha + \beta}{(\alpha\beta)^2}$ (iii) $9\alpha\beta - 3(\alpha + \beta) + 1$

(iv) $\frac{(\alpha + \beta)^2 - 2\alpha\beta + 3(\alpha + \beta)}{\alpha\beta}$ 2.(i) $\frac{7}{5}$ (ii) $\frac{29}{10}$ (iii) $\frac{13}{6}$
 3.(i) $x^2 - 44x + 16 = 0$ (ii) $x^2 - 3x - 1 = 0$ (iii) $x^2 - 24x - 64 = 0$
 4. -15, 15 5. -24, 24 6. -36

Exercise 3.15

1. ₹6500, ₹1250 2. $y=8, x=4$ 3. $y=4.5, x=15$, 4. $y=18$ minutes, 10 pipes
 5. 360, ₹30 6. ₹90, 10 hrs

Exercise 3.16

1.(i) Real and unequal roots (ii) Real and equal roots (iii) No real roots
 (iv) Real and unequal roots (v) Real and equal roots (vi) Real and unequal roots
 2. -3, 4 3. No real roots 4. -1
 5. -4, 1 6. -2, 7 7. -1, 3 8. -2, 3

Exercise 3.17

1.(i) 16 (ii) 4×4 (iii) $\sqrt{7}, \frac{\sqrt{3}}{2}, 5, 0, -11, 1$
 2. $1 \times 18, 2 \times 9, 3 \times 6, 6 \times 3, 9 \times 2, 18 \times 1$ and $1 \times 6, 2 \times 3, \frac{3}{2} \times 2, 6 \times 1$

3.(i) $\begin{pmatrix} 1 & 3 & 5 \\ 0 & 2 & 4 \\ 1 & 1 & 3 \end{pmatrix}$ (ii) $\begin{pmatrix} \frac{8}{3} & 9 & \frac{64}{3} \\ 9 & \frac{64}{3} & \frac{125}{3} \\ \frac{64}{3} & \frac{125}{3} & 72 \end{pmatrix}$ 4. $\begin{pmatrix} 5 & 1 & 3 \\ 4 & -7 & 8 \\ 3 & 9 & 2 \end{pmatrix}$

5. $\begin{pmatrix} -\sqrt{7} & \sqrt{5} & -\sqrt{3} \\ 3 & -2 & 5 \end{pmatrix}$ 7.(i) 3, 12, 3 (ii) 4, 2, 0 or 2, 4, 0 (iii) 2, 4, 3

Exercise 3.18

3. $\begin{pmatrix} 5 & 0 \\ 3 & 9 \\ 2 & 2 \end{pmatrix}, \begin{pmatrix} 2 & 0 \\ 3 & 1 \\ 2 & 2 \end{pmatrix}$ 4.(i) $\begin{pmatrix} 7 & -17 & -37 \\ -39 & -11 & -26 \end{pmatrix}$ (ii) $\begin{pmatrix} -63 & -15 & -45 \\ 15 & -27 & -60 \end{pmatrix}$

5.(i) 4, -10, 12 (ii) -10, 14, 10 6. 4, 6 7. 4 8. -1, 5 and -2, 4

Exercise 3.19

1. $3 \times 3, 4 \times 2, 4 \times 2, 4 \times 1, 1 \times 3$ 2. $p \times r$, not defined 3. 7, 10

4. $\begin{pmatrix} 12 & 19 \\ 10 & 3 \end{pmatrix}, \begin{pmatrix} -10 & -4 \\ 24 & 25 \end{pmatrix}, AB \neq BA$

Exercise 3.20

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
(D)	(A)	(B)	(A)	(B)	(C)	(D)	(B)	(C)	(C)	(B)	(A)	(B)	(D)	(B)	(B)	(D)	(B)	(C)	(A)

Unit exercise-3

1. 6, 2, 1 2. 42, 78, 30 3. 153 4. $(ky + x)(k^2x^2 - y^2)$ 5. $x^2 + 2x + 1$ 6. (i) $x^a - 2$
 (ii) $-x + \frac{5}{2}$ 7. $\frac{(p + q + r)^2}{2qr}$ 8. 11 hrs, 22 hrs, 33 hrs 9. $|17x^2 - 18x + 19|$ 10. 3
 11. 14 km/hr 12. 120 m, 40 m 13. 14 minutes 14. 25 15.(i) $x^2 - 6x + 11 = 0$

(ii) $3x^2 - 2x + 1 = 0$ 16. $3, \frac{9}{4}$ 17.(i) $\begin{pmatrix} 750 & 1500 & 2250 \\ 3750 & 2250 & 750 \end{pmatrix}$ (ii) $\begin{pmatrix} 8000 & 16000 & 24000 \\ 40000 & 24000 & 8000 \end{pmatrix}$

18. $\sin \theta$ 19. 8, 4 20. $\begin{pmatrix} 122 & 71 \\ -58 & -34 \end{pmatrix}$

Exercise 4.1

- 1.(i) Not similar (ii) Similar, 2.5 2. 3.3 m 3. 42 m
 5. $\frac{15}{13}, \frac{36}{13}$ 6. 5.6 cm, 3.25 cm 8. 2.8 cm 9. 2 m

Exercise 4.2

- 1.(i) 6.43 cm (ii) 1 2. 60 cm 5. 4 cm, 4 cm
 8.(i) Not a bisector (ii) Bisector 12. 2.1 cm

Exercise 4.3

1. 30 m 2. 1 mile 3. 21.74 m 4. 12 cm, 5 cm
 5. 10 m, 24 m, 26 m 6. 0.8 m

Exercise 4.4

1. 7 cm 2. 2 cm 3. 7 cm, 5 cm, 3 cm 4. 30° 5. 130°
 6. $\frac{20}{3}$ cm 7. 10 cm 8. 4.8 cm 10. 2 cm 13. 8.7 cm 14. 10.3 cm 15. 4 cm 16. 6.3 cm

Exercise 4.5

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
(C)	(B)	(D)	(A)	(D)	(A)	(B)	(C)	(A)	(D)	(B)	(B)	(B)	(D)	(A)

Unit exercise-4

2. $\frac{12}{5}$ cm, $\frac{10}{3}$ cm 5. $20\sqrt{13}$ km 7. 10 m 8. shadow = $\frac{4}{11} \times (\text{distance})$ 10. 6 units

Exercise 5.1

- 1.(i) 24 sq. units (ii) 11.5 sq. units 2.(i) collinear (ii) collinear
 3.(i) 44 (ii) 13 4.(i) 0 (ii) $\frac{1}{2}$ or -1 5.(i) 35 sq. units (ii) 34 sq. units
 6. -5 7. 2, -1 8. 24 sq. units, $\text{area}(\triangle ABC) = 4 \times \text{area}(\triangle PQR)$ 9. 122 sq. units
 10. 10 cans 11.(i) 3.75 sq. units (ii) 3 sq. units (iii) 13.88 sq. units

Exercise 5.2

- 1.(i) undefined (ii) 0 2.(i) 0° (ii) 45° 3.(i) $\frac{1}{\sqrt{5}}$ (ii) $-\cot \theta$
 4. 3 6. 7 7. $\frac{17}{2}$ 8. 4 9.(i) yes (ii) yes 11. 5, 2

Exercise 5.3

- 1.(i) $2y + 3 = 0$ (ii) $2x - 5 = 0$ 2. $1, 45^\circ, \frac{5}{2}$
 3. $x - \sqrt{3}y - 3\sqrt{3} = 0$ 4. $\frac{\sqrt{3} + 3}{2}, \frac{3 + 3\sqrt{3}}{-2}$ 5. -5 6. $x - y - 16 = 0$
 7.(i) $16x - 15y - 22 = 0$ (ii) $4x - 9y + 19 = 0$ 8. $15x - 11y + 46 = 0$
 9. $x + 4y - 14 = 0, 3x + 5y - 28 = 0$ 10. $5x + 4y - 3 = 0$
 11. (i) 1 (ii) 7.5 seconds (iii) 10 seconds

- 12.(i) $3x - 2y - 12 = 0$ (ii) $3x - 20y + 15 = 0$ 13.(i) 2, -3
 (ii) -3, -4 14.(i) $5x + 2y + 3 = 0$ (ii) $x + y + 4 = 0$

Exercise 5.4

- 1.(i) 0 (ii) undefined 2.(i) 0.7 (ii) 0
 3.(i) Parallel (ii) Perpendicular 4. 4 5. $3x + 4y + 7 = 0$
 6. $2x + 5y - 2 = 0$ 7. $2x + 5y + 6 = 0$, $5x + y - 48 = 0$ 8. $5x - 3y - 8 = 0$
 9. $13x + 5y - 18 = 0$ 10. $49x + 28y - 156 = 0$ 11. $31x + 15y + 30 = 0$
 12. $4x + 13y - 9 = 0$

Exercise 5.5

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
(B)	(A)	(B)	(C)	(C)	(D)	(B)	(B)	(A)	(C)	(C)	(A)	(B)	(B)	(B)

Unit exercise-5

1. Rhombus 2. $\left(\frac{7}{2}, \frac{13}{2}\right)$ 3. 0 sq.units 4. -5 6. $2x - 3y - 6 = 0$, $3x - 2y + 6 = 0$
 7. 1340 litres 8. (-1, -4) 9. $13x + 13y - 6 = 0$ 10. $119x + 102y - 125 = 0$

Exercise 6.2

1. 30° 2. 24 m 3. 3.66 m 4. 1.5 m 5.(i) 7 m (ii) 16.39 m 6. 10 m

Exercise 6.3

1. 150 m 2. 50 m 3. 32.93 m 4. 2078.4 m 6. 30 Feet / m

Exercise 6.4

1. 35.52 m 2. 69.28 m, 160 m 4. 150 m, yes
 5.(i) 264 m (ii) 198 m (iii) 114.31 m 6.(i) 2.91 km (ii) 6.93 km

Exercise 6.5

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
(B)	(D)	(B)	(A)	(B)	(B)	(A)	(C)	(B)	(D)	(B)	(B)	(D)	(B)	(A)

Unit exercise-6

5. 29.28 m/s 6. 1.97 seconds (approx) 7.(i) 24.58 km(approx)
 (ii) 17.21 km (approx) (iii) 21.41 km (approx) (iv) 23.78 km (approx)
 8. 200 m 9. 39.19 m

Exercise 7.1

1. 25 cm, 35 cm 2. 7 cm, 35 cm 3. 2992 sq.cm
 4. CSA of the cone when rotated about PQ is larger. 5. 18.25 m
 6. 28 caps 7. $\sqrt{5} : 9$ 8. 56.25% 9. ₹ 302.72 10. ₹ 1357.72

Exercise 7.2

1. 4.67 m 2. 1 cm 3. 652190 cm^3 4. 63 minutes (approx)
 5. 100.58 6. 5:7 7. 64:343 9. 4186.29 cm^3 10. ₹ 418.36

Exercise 7.3

1. 1642.67 cm^3 2. 66 cm^3 3. 2.46 cm^3 4. 905.14 cm^3
 5. 77.78 mm^3 6. 332.5 cm^2 7.(i) $4\pi r^2$ sq. units
 (ii) $4\pi r^2$ sq. units (iii) 1:1

Exercise 7.4

1. 36 cm 2. 2 hrs 3. $\frac{h}{3x^2}$ 4. 6 cm 5. 1812000 cm^3 / 1812 litre 6. 1.33 cm
7. 1 cm 8. 100%

Exercise 7.5

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
(D)	(A)	(A)	(B)	(C)	(B)	(B)	(C)	(C)	(A)	(D)	(A)	(A)	(B)	(D)

Unit exercise-7

1. 48000 words 2. 27 minutes (approx.) 3. $\frac{1}{3}\pi r^3$ cu.units 4. 782.57 sq.cm
5. 450 coins 6. 4.8 cm 7. ₹ 6800 8. 2 cm 9. 17 cm 10. 2794.18 cm^3

Exercise 8.1

- 1.(i) 62; 0.33 (ii) 47.8; 0.64 2. 50.2 3. 250 4. 2.34
5. 222.22, 14.91 6. 6.9 7. 6.05 8. 4.5 9. 1.2, 1.44 10. 7.76 11. 14.6
12. 6 13. 1.24 14. 60.5, 14.61 15. 6 and 8

Exercise 8.2

1. 52% 2. 4.69 3. 7.2 4. 180.28% 5. 14.4% 6. 10.07% 7. Vidhya 8. Social, Science

Exercise 8.3

1. $\{HHH, HHT, HTH, HTT, THH, THT, TTH, TTT\}$
2. $\{(1,2), (1,3), (1,4), (1,5), (1,6), (2,1), (2,3), (2,4), (2,5), (2,6), (3,1), (3,2), (3,4), (3,5), (3,6), (4,1), (4,2), (4,3), (4,5), (4,6), (5,1), (5,2), (5,3), (5,4), (5,6), (6,1), (6,2), (6,3), (6,4), (6,5)\}$

3. (i) $\frac{15}{32}$ (ii) 340 4. $\frac{3}{8}$ 5. (i) $\frac{9}{1000}$ (ii) $\frac{8}{999}$ 6. (i) $\frac{1}{4}$ (ii) $x = 4$
7. (i) $\frac{1}{6}$ (ii) $\frac{1}{6}$ (iii) $\frac{5}{12}$ (iv) 0 8. (i) $\frac{1}{8}$ (ii) $\frac{7}{8}$ (iii) $\frac{1}{2}$ (iv) $\frac{7}{8}$
9. (i) $\frac{3}{13}$ (ii) $\frac{1}{2}$ (iii) $\frac{10}{13}$ (iv) $\frac{6}{13}$
10. 12 11. $\frac{157}{600}$ 12. (i) $\frac{1}{6}$ (ii) $\frac{5}{6}$ (iii) $\frac{5}{18}$
13. (i) $\frac{1}{8}$ (ii) $\frac{3}{4}$ (iii) $\frac{1}{8}$

Exercise 8.4

1. $\frac{11}{15}$ 2. (i) 0.58 (ii) 0.52 (iii) 0.74 3. 0.1 4. 1.2 5. 0.2
6. $\frac{5}{9}$ 7. $\frac{13}{18}$ 8. $\frac{7}{8}$ 9. $\frac{73}{280}$ 10. $\frac{17}{40}$ 11. 1 12. $\frac{11}{48}, \frac{11}{24}, \frac{11}{16}$ 13. $\frac{29}{35}$

Exercise 8.5

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
(C)	(A)	(C)	(B)	(C)	(D)	(B)	(A)	(A)	(B)	(B)	(B)	(C)	(C)	(D)

Unit exercise-8

1. 8,12 2. 5.55 3. 7 4. 81 5. 5.17, 1.53 6. City A 7. 60, 40
8. $\frac{1}{9}$ 9. $\frac{3}{4}$ 10. 10 11. $\frac{13}{20}$