

Answers

1. Linear Equations In Two Variables

Practice Set 1.1

2. (1) (2, 4) (2) (3, 1) (3) (6, 1) (4) (5, 2)
 (5) (-1, 1) (6) (1, 3) (7) (3, 2) (8) (7, 3)

Practice Set 1.2

1. (1)

x	3	-2	0
y	0	5	3
(x, y)	(3, 0)	(-2, 5)	(0, 3)

(2)

x	4	-1	0
y	0	-5	-4
(x, y)	(4, 0)	(-1, -5)	(0, -4)

2. (1) (5, 1) (2) (4, 1) (3) (3, -3) (4) (-1, -5) (5) (1, 2.5) (6) (8, 4)

Practice Set 1.3

1. $\begin{vmatrix} 3 & 2 \\ 4 & 5 \end{vmatrix} = 3 \times \boxed{5} - \boxed{2} \times 4 = \boxed{15} - 8 = \boxed{7}$

2. (1) -18 (2) 21 (3) $-\frac{4}{3}$

3. (1) (2, -1) (2) (-2, 4) (3) (3, -2) (4) (2, 6) (5) (6, 5) (6) $(\frac{5}{8}, \frac{1}{4})$

Practice Set 1.4

1. (1) $(\frac{1}{9}, 1)$ (2) (3, 2) (3) $(\frac{5}{2}, -2)$ (4) (1, 1)

Practice Set 1.5

1. The numbers are 5 and 2 2. $x = 12$, $y = 8$, Area = 640 sq. unit,
 Perimeter = 112 unit 3. Son's age is 15 years, father's age is 40 years
 4. $\frac{7}{18}$ 5. A - 30 kg, B - 55 kg 6. 150 km.

Problem Set 1

1. (1) B (2) A (3) D (4) C (5) A

2.

x	-5	$\frac{3}{2}$
y	$-\frac{13}{6}$	0
(x, y)	$(-5, -\frac{13}{6})$	$(\frac{3}{2}, 0)$

3. (1) (3, 2) (2) (-2, -1) (3) (0, 5) (4) (2, 4) (5) (3, 1)
4. (1) 22 (2) -1 (3) 13
5. (1) $(-\frac{2}{3}, 2)$ (2) (1, 4) (3) $(\frac{1}{2}, -\frac{1}{2})$ (4) $(\frac{7}{11}, \frac{116}{33})$ (5) (2, 6)
6. (1) (6, -4) (2) $(-\frac{1}{4}, -1)$ (3) (1, 2) (4) (1, 1) (5) (2, 1)
7. (2) Tea; ₹300 per kg.
sugar; ₹ 40 per kg.
(3) ₹100 notes 20
₹50 notes 10
(4) Manisha's age 23 years
Savita's age 8 years.
- (5) Skilled worker's wages ₹ 450.
unskilled worker's wages ₹ 270.
(6) Hamid's speed 50 km/hr.
Joseph's speed 40 km/hr.

2. Quadratic Equations

Practice Set 2.1

1. Any equations of the type $m^2 + 5m + 3 = 0$, $y^2 - 3 = 0$
2. (1), (2), (4), (5) are quadratic equations.
3. (1) $y^2 + 2y - 10 = 0$, $a = 1, b = 2, c = -10$
(2) $x^2 - 4x - 2 = 0$, $a = 1, b = -4, c = -2$
(3) $x^2 + 4x + 3 = 0$, $a = 1, b = 4, c = 3$
(4) $m^2 + 0m + 9 = 0$, $a = 1, b = 0, c = 9$
(5) $6p^2 + 3p + 5 = 0$, $a = 6, b = 3, c = 5$
(6) $x^2 + 0x - 22 = 0$, $a = 1, b = 0, c = -22$
4. (1) 1 is a root, -1 is not. (2) $\frac{5}{2}$ is a root, 2 is not.
5. $k = 3$ 6. $k = -7$

Practice Set 2.2

1. (1) 9, 6 (2) -5, 4 (3) $-13, -\frac{1}{2}$ (4) $5, -\frac{3}{5}$
(5) $\frac{1}{2}, \frac{1}{2}$ (6) $\frac{2}{3}, -\frac{1}{2}$ (7) $-\frac{5}{\sqrt{2}}, -\sqrt{2}$ (8) $\frac{\sqrt{2}}{\sqrt{3}}, \frac{\sqrt{2}}{\sqrt{3}}$
(9) 25, -1 (10) $-\frac{3}{5}, \frac{3}{5}$ (11) 0, 3 (12) $-\sqrt{11}, \sqrt{11}$

Practice Set 2.3

1. (1) $4, -5$ (2) $(\sqrt{6} - 1), (-\sqrt{6} - 1)$ (3) $\frac{\sqrt{13} + 5}{2}, \frac{-\sqrt{13} + 5}{2}$
(4) $\frac{\sqrt{2} + 2}{3}, \frac{-\sqrt{2} + 2}{3}$ (5) $-2, -\frac{5}{2}$ (6) $\frac{2 + \sqrt{39}}{5}, \frac{2 - \sqrt{39}}{5}$

Practice Set 2.4

1. (1) $1, -7, 5$ (2) $2, -5, 5$ (3) $1, -7, 0$
2. (1) $-1, -5$ (2) $\frac{3 + \sqrt{17}}{2}, \frac{3 - \sqrt{17}}{2}$ (3) $\frac{-1 + \sqrt{22}}{3}, \frac{-1 - \sqrt{22}}{3}$
(4) $\frac{2 + \sqrt{14}}{5}, \frac{2 - \sqrt{14}}{5}$ (5) $\frac{-1 + \sqrt{73}}{6}, \frac{-1 - \sqrt{73}}{6}$ (6) $-1, -\frac{8}{5}$
3. $-\sqrt{3}, -\sqrt{3}$

Practice Set 2.5

1. (1) Roots are distinct and real when $b^2 - 4ac = 5$, not real when $b^2 - 4ac = -5$.
(2) $x^2 + 7x + 5 = 0$ (3) $\alpha + \beta = 2, \alpha \times \beta = -\frac{3}{2}$
2. (1) 53 (2) -55 (3) 0
3. (1) Real and equal. (2) Real and unequal. (3) Not real.
4. (1) $x^2 - 4x = 0$ (2) $x^2 + 7x - 30 = 0$
(3) $x^2 - \frac{1}{4} = 0$ (4) $x^2 - 4x - 1 = 0$
5. $k = 3$ 6. (1) 18 (2) 50
7. (1) $k = 12$ or $k = -12$ (2) $k = 6$

Practice Set 2.6

1. 9 years 2. 10 and 12 3. In vertical row 10, in horizontal row 15.
4. Kishor's present age is 10 years and Vivek's present age is 15 years
5. 10 marks 6. No. of pots 6, production cost of each is ₹ 100.
7. 6 km/hr 8. For Nishu 6 days, for Pintu 12 days.
9. Divisor = 9, quotient = 51 10. $AB = 7$ cm, $CD = 15$ cm, $AD = BC = 5$ cm.

Problem Set 2

1. (1) B (2) A (3) C (4) B (5) B (6) D (7) C (8) C
2. (1) and (3) are quadratic equations.

3. (1) -15 (2) 1 (3) 21
4. $k = 3$ 5. (1) $x^2 - 100 = 0$ (2) $x^2 - 2x - 44 = 0$ (3) $x^2 - 7x = 0$
6. (1) Not real. (2) Real and unequal (3) Real and equal
7. (1) $\frac{1+\sqrt{21}}{2}, \frac{1-\sqrt{21}}{2}$ (2) $\frac{1}{2}, -\frac{1}{5}$ (3) 1, -4
 (4) $\frac{-5+\sqrt{5}}{2}, \frac{-5-\sqrt{5}}{2}$ (5) Roots are not real. (6) $(2 + \sqrt{7}), (2 - \sqrt{7})$
8. $m = 14$ 9. $x^2 - 5x + 6 = 0$ 10. $x^2 - 4pqx - (p^2 - q^2)^2 = 0$
11. ₹ 100 with Sagar, ₹ 150 with Mukund.
12. 12 and $\sqrt{24}$ or 12 and $-\sqrt{24}$ 13. No. of students 60
14. Breadth 45 m. length 100 m, side of the pond 15 m.
15. For larger tap 3 hours and for smaller tap 6 hours.

3. Arithmetic Progression

Practice Set 3.1

1. (1) Yes, $d = 2$ (2) Yes, $d = \frac{1}{2}$ (3) Yes, $d = 4$ (4) No
 (5) Yes, $d = -4$ (6) Yes, $d = 0$ (7) Yes, $d = \sqrt{2}$ (8) Yes, $d = 5$
2. (1) 10, 15, 20, 25, ... (2) -3, -3, -3, -3, ... (3) -7, -6.5, -6, -5.5, ...
 (4) -1.25, 1.75, 4.75, 7.75, ... (5) 6, 3, 0, -3 ... (6) -19, -23, -27, -31
3. (1) $a = 5, d = -4$ (2) $a = 0.6, d = 0.3$ (3) $a = 127, d = 8$ (4) $a = \frac{1}{4}, d = \frac{1}{2}$

Practice Set 3.2

1. (1) $d = 7$ (2) $d = 3$ (3) $a = -3, d = -5$ (4) $a = 70, d = -10$
2. Yes. 121 3. 104 4. 115 5. -121 6. 180
7. 55 8. 55th 9. 60 10. 1

Practice Set 3.3

1. 1215 2. 15252 3. 30450 5. 5040
5. 2380 6. 60 7. 4, 9, 14 or 14, 9, 4 8. -3, 1, 5, 9

Practice Set 3.4

1. ₹ 70455 2. First instalment ₹ 1000, last instalment ₹ 560. 3. ₹ 1,92,000
4. 48, 1242 5. $-20^\circ, -25^\circ, -30^\circ, -35^\circ, -40^\circ, -45^\circ$ 6. 325

Problem Set 3

1. (1) B (2) C (3) B (4) D (5) B (6) C (7) C (8) A (9) A (10) B
2. 40 3. 1, 6, 11, ... 4. -195 5. 16, -21 6. -1 7. 6, 10
8. 8 9. 67, 69, 71 10. 3, 7, 11, ..., 147 14. ₹ 2000.

4. Financial Planning

Practice Set 4.1

1. CGST 6%, SGST 6%
2. SGST 9%, GST 18%
3. CGST ₹ 784 and SGST ₹ 784
4. The customer gets the belt for ₹ 691.48.
5. Taxable value of toy car is ₹ 1500, CGST ₹ 135, SGST ₹ 135
6. (1) Rate of SGST 14% (2) Rate of GST on AC 28%
(3) Taxable value of AC ₹ 40,000. (4) Total GST ₹ 11,200.
(5) CGST ₹ 5600. (6) SGST ₹ 5600.
7. Prasad gets the washing machine for ₹ 48,640 and CGST ₹ 5320, SGST ₹ 5320.

Practice Set 4.2

1. Payable GST ₹ 22,000.
2. Input Tax Credit for Nazama is ₹ 12,500 and her payable GST is ₹ 2250.
3. Ameer Enterprises : Payable GST ₹ 300, payable CGST ₹ 150,
payable SGST ₹ 150.
Akabari Brothers : payable GST ₹ 400, payable CGST ₹ 200,
payable SGST ₹ 200.
4. Payable GST ₹ 100 so CGST ₹ 50 and UTGST ₹ 50. 5. CGST = SGST = ₹ 900

Practice Set 4.3

1. (1) MV ₹ 100 (2) FV ₹ 75 (3) At discount of ₹ 5.
2. 25% 3. ₹ 37,040 4. 800 shares
5. Rate of return 5.83% 6. Company A – more profitable.

Practice Set 4.4

1. ₹ 200.60 2. ₹ 999
- 3.

No. of shares	MV of shares	Total value	Brokerage 0.2%	9% CGST on brokerage	9% SGST on brokerage	Total value of shares
100 B	₹ 45	₹ 4500	₹ 9	₹ 0.81	₹ 0.81	₹ 4510.62
75 S	₹ 200	₹ 15000	₹ 30	₹ 2.70	₹ 2.70	₹ 14964.60

4. No. of shares sold = 100. 5. Loss of ₹ 8560.

Problem Set 4A

1. (1) C (2) B (3) D (4) B (5) A (6) B
2. Total bill ₹ 28,800, CGST ₹ 3150, SGST ₹ 3150.

3. ₹ 997.50 4. ₹ 12,500 5. ITC ₹ 4250, payable tax ₹ 250
6. ITC ₹ 1550, payable CGST ₹ 5030, payable SGST ₹ 5030.
7. Taxable value ₹ 75,000, CGST ₹ 4500, SGST ₹ 4500
8. (1) Wholesaler's tax invoice : CGST ₹ 16200; SGST ₹ 16200.
Retailer's tax invoice: CGST ₹ 19,800; SGST ₹ 19,800.
- (2) Wholesaler : payable CGST ₹ 2700 and payable SGST ₹ 2700,
Retailer : payable CGST ₹ 3600 and payable SGST ₹ 3600
9. (1) Anna Patil's invoice : CGST ₹ 1960, SGST ₹ 1960
(2) Trader in Vasai : CGST ₹ 2352 and SGST ₹ 2352
(3) Trader in Vasai : payable CGST ₹ 392 and payable SGST ₹ 392
- 10.

(1)

Person	Payable CGST (₹)	Payable SGST (₹)	Payable GST (₹)
Manufacturer	300	300	600
Distributor	360-300 = 60	60	120
Retailer	390-360 = 30	30	60
Total Tax	390	390	780

- (2) Finally, the customer will get the article for ₹ 7280.
(3) Manufacturer to distributor B2B, distributor to retailer B2B,
retailer to customer B2C

Problem Set 4B

1. (1) B (2) B (3) A (4) C (5) A
2. ₹ 130.39 3. 22.2% 4. will get ₹ 21,000 .
5. Will get 500 shares. 6. Profit ₹ 1058.52 7. Company B, as returns are more
8. Will get 1000 shares. 9. ₹ 118.
10. (1) ₹ 1,20,000 (2) ₹ 360 (3) ₹ 64.80 (4) ₹ 120424.80.
11. 1% profit

5. Probability

Practice Set 5.1

1. (1) 8 (2) 7 (3) 52 (4) 11

Practice Set 5.2

1. (1) $S = \{1H, 1T, 2H, 2T, 3H, 3T, 4H, 4T, 5H, 5T, 6H, 6T\}$ $n(S) = 12$

- (2) $S = \{23, 25, 32, 35, 52, 53\}$ $n(S) = 6$
2. $S = \{\text{Red, Purple, Orange, Yellow, Blue, Green}\}$ $n(S) = 6$
3. $S = \{\text{Tuesday, Sunday, Friday, Wednesday, Monday, Saturday}\}$ $n(S) = 6$
4. (1) B_1B_2 (2) G_1G_2 (3) B_1G_1 B_2G_1 B_1G_2 B_2G_2
- (4) $S = \{B_1B_2, B_1G_1, B_1G_2, B_2G_1, B_2G_2, G_1G_2\}$

Practice Set 5.3

1. (1) $S = \{1, 2, 3, 4, 5, 6\}$ $n(S) = 6$
 $A = \{2, 4, 6\}$ $n(A) = 3$, $B = \{1, 3, 5\}$ $n(B) = 3$, $C = \{2, 3, 5\}$ $n(C) = 3$
- (2) $S = \{(1,1), \dots, (1,6), (2,1), \dots, (2,6), (3,1), \dots, (3,6),$
 $(4,1), \dots, (4,6), (5,1), \dots, (5,6), (6,1), \dots, (6,6)\}$ $n(S) = 36$
 $A = \{(1,5) (2,4) (3,3) (4,2) (5,1) (6,6)\}$ $n(A) = 6$
 $B = \{(4,6) (5,5) (5,6) (6,4) (6,5) (6,6)\}$ $n(B) = 6$
 $C = \{(1,1) (2,2) (3,3) (4,4) (5,5) (6,6)\}$ $n(C) = 6$
- (3) $S = \{HHH, HHT, HTT, HTH, THT, TTH, THH, TTT\}$ $n(S) = 8$
 $A = \{HHH, HHT, HTH, THH\}$ $n(A) = 4$
 $B = \{TTT\}$ $n(B) = 1$
 $C = \{HHH, HHT, THH, THT\}$ $n(C) = 4$
- (4) $S = \{10, 12, 13, 14, 15, 20, 21, 23, 24, 25, 30, 31, 32, 34, 35, 40, 41, 42, 43,$
 $45, 50, 51, 52, 53, 54\}$ $n(S) = 25$
 $A = \{10, 12, 14, 20, 24, 30, 32, 34, 40, 42, 50, 52, 54\}$ $n(A) = 13$
 $B = \{12, 15, 21, 24, 30, 42, 45, 51, 54\}$ $n(B) = 9$
 $C = \{51, 52, 53, 54\}$ $n(C) = 4$
- (5) $S = \{M_1M_2, M_1M_3, M_1F_1, M_1F_2, M_2M_3, M_2F_1, M_2F_2, M_3F_1, M_3F_2, F_1F_2\}$
 $n(S) = 10$
 $A = \{M_1F_1, M_1F_2, M_2F_1, M_2F_2, M_3F_1, M_3F_2, F_1F_2\}$ $n(A) = 7$
 $B = \{M_1F_1, M_1F_2, M_2F_1, M_2F_2, M_3F_1, M_3F_2\}$ $n(B) = 6$
 $C = \{M_1M_2, M_1M_3, M_2M_3\}$ $n(C) = 3$
- (6) $S = \{H1, H2, H3, H4, H5, H6, T1, T2, T3, T4, T5, T6\}$ $n(S) = 12$
 $A = \{H1, H3, H5\}$ $n(A) = 3$
 $B = \{H2, H4, H6, T2, T4, T6\}$ $n(B) = 6$
 $C = \{\}$ $n(C) = 0$

Practice Set 5.4

1. (1) $\frac{3}{4}$, (2) $\frac{1}{4}$ 2. (1) $\frac{1}{6}$ (2) 0 (3) $\frac{5}{12}$

3. (1) $\frac{7}{15}$ (2) $\frac{1}{5}$ 4. (1) $\frac{4}{5}$ (2) $\frac{1}{5}$ 5. (1) $\frac{1}{13}$ (2) $\frac{1}{4}$

Problem Set – 5

1. (1) B (2) B (3) C (4) A (5) A 2. Vasim's 3. (1) $\frac{1}{11}$ (2) $\frac{6}{11}$
 4. $\frac{5}{26}$ 5. (1) $\frac{4}{9}$ (2) $\frac{1}{3}$ (3) $\frac{4}{9}$ 6. $\frac{1}{2}$ 7. (1) $\frac{1}{3}$ (2) $\frac{1}{6}$
 8. (1) $\frac{1}{2}$ (2) $\frac{1}{6}$ 9. $\frac{1}{25}$ 10. (1) $\frac{1}{8}$ (2) $\frac{1}{2}$ (3) $\frac{3}{4}$ (4) 1
 11. (1) $\frac{5}{6}$ (2) $\frac{1}{6}$ (3) 1 (4) 0 12. (1) $\frac{1}{3}$ (2) $\frac{2}{3}$ (3) $\frac{2}{3}$ 13. $\frac{2}{11}$
 14. $\frac{13}{40}$ 15. (1) $\frac{3}{10}$ (2) $\frac{3}{10}$ (3) $\frac{1}{5}$ 16. $\frac{11}{36}$

6. Statistics

Practice Set 6.1

- (1) 4.36 hrs (2) ₹ 521.43. (3) 2.82 litre (4) ₹ 35310
 (5) ₹ 985 or ₹ 987.5. (6) ₹ 3070 or ₹ 3066.67.

Practice Set 6.2

- (1) 11.4 hrs (2) 184.4 means 184 mangoes approximately (3) $74.558 \approx 75$ vehicles
 (4) 52750 lamps

Practice Set 6.3

1. 4.33 litre 2. 72 unit 3. 9.94 litre 4. 12.31 years

Practice Set 6.5

1. (1) 60–70 (2) 20–30 and 90–100 (3) 55 (4) 80 and 90 (5) 15

Practice Set 6.6

5. (1) 2000 (2) 1000 (3) 25%
 6. (1) ₹ 12000 (2) ₹ 3000 (3) ₹ 2000 (4) ₹ 1000.

Problem Set – 6

1. (1) D (2) A (3) B (4) C (5) C (6) C
 2. ₹ 52,500 3. ₹ 65,400 4. ₹ 4250
 5. ₹ 72,400 6. 223.13 km. 7. ₹ 32 8. 397.06 gm
 14. (1) Cars – 108° , Tempos – 43° , Buses – 29° , Auto-rickshaws – 36° ,
 Two wheelers – 144°
 (2) Total number of vehicles – 3000
 16. (1) Cricket – 225, (2) Football – 175 (3) Other games – 200.