

સ્વાધ્યાય 4.3

1. નીચેનાં સમીકરણો ઉકેલો :

(a) $2y + \frac{5}{2} = \frac{37}{2}$

જ. $2y + \frac{5}{2} = \frac{37}{2}$
 $\therefore 2y = \frac{37}{2} - \frac{5}{2}$
 $\therefore 2y = \frac{37-5}{2}$
 $\therefore 2y = \frac{32}{2}$
 $\therefore 2y = 16$
 $\therefore y = \frac{16}{2}$
 $\therefore y = 8$

(b) $5t + 28 = 10$

જ. $5t + 28 = 10$
 $\therefore 5t = 10 - 28$
 $\therefore 5t = -18$
 $\therefore t = \frac{-18}{5}$

(c) $\frac{a}{5} + 3 = 2$

જ. $\frac{a}{5} + 3 = 2$
 $\therefore \frac{a}{5} = 2 - 3$
 $\therefore \frac{a}{5} = -1$
 $\therefore a = -1 \times 5$
 $\therefore a = -5$

$$(d) \quad \frac{q}{4} + 7 = 5$$

$$\text{Sol.} \quad \frac{q}{4} + 7 = 5$$

$$\therefore \frac{q}{4} = 5 - 7$$

$$\therefore \frac{q}{4} = -2$$

$$\therefore q = -2 \times 4$$

$$\therefore q = -8$$

$$(e) \quad \frac{5}{2}x = -10$$

$$\text{Sol.} \quad \frac{5}{2}x = -10$$

$$\therefore 5x = -10 \times 2$$

$$\therefore 5x = -20$$

$$\therefore x = \frac{-20}{5}$$

$$\therefore x = -4$$

$$(f) \quad \frac{5}{2}x = \frac{25}{4}$$

$$\text{Sol.} \quad \frac{5}{2}x = \frac{25}{4}$$

$$\therefore 5x = \frac{25}{4} \times 2$$

$$\therefore 5x = \frac{25}{2}$$

$$\therefore x = \frac{25}{2 \times 5}$$

$$\therefore x = \frac{5}{2}$$

$$(g) \quad 7m + \frac{19}{2} = 13$$

$$\text{Sol.} \quad 7m + \frac{19}{2} = 13$$

$$\therefore 7m = \frac{13}{1} - \frac{19}{2}$$

$$\therefore 7m = \frac{26}{2} - \frac{19}{2}$$

$$\therefore 7m = \frac{26 - 19}{2}$$

$$\therefore 7m = \frac{7}{2}$$

$$\therefore m = \frac{7}{2 \times 7}$$

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

(h) $6z + 10 = -2$

sol. $6z + 10 = -2$

$$\therefore 6z = -2 - 10$$

$$\therefore 6z = -12$$

$$\therefore z = \frac{-12}{6}$$

$$\therefore z = -2$$

(i) $\frac{3l}{2} = \frac{2}{3}$

sol. $\frac{3l}{2} = \frac{2}{3}$

$$\therefore 3l = \frac{2}{3} \times 2$$

$$\therefore 3l = \frac{4}{3}$$

$$\therefore l = \frac{4}{3 \times 3}$$

$$\therefore l = \frac{4}{9}$$

(j) $\frac{2b}{3} - 5 = 3$

sol. $\frac{2b}{3} - 5 = 3$

$$\therefore \frac{2b}{3} = 3 + 5$$

$$\therefore \frac{2b}{3} = 8$$

$$\therefore 2b = 8 \times 3$$

$$\therefore 2b = 24$$

$$\therefore b = \frac{24}{2}$$

$$\therefore b = 12$$

2. નીચેનાં સમીકરણો ઉકેલો :

(a) $2(x + 4) = 12$

જ. $2(x + 4) = 12$

$$\therefore x + 4 = \frac{12}{2}$$

$$\therefore x + 4 = \frac{12}{2}$$

$$\therefore x + 4 = 6$$

$$\therefore x = 6 - 4$$

$$\therefore x = 2$$

(b) $3(n - 5) = 21$

જ. $3(n - 5) = 21$

$$\therefore n - 5 = \frac{21}{3}$$

$$\therefore n - 5 = 7$$

$$\therefore n = 7 + 5$$

$$\therefore n = 12$$

(c) $3(n - 5) = -21$

જ. $3(n - 5) = -21$

$$\therefore n - 5 = \frac{-21}{3}$$

$$\therefore n - 5 = -7$$

$$\therefore n = -7 + 5$$

$$\therefore n = -2$$

(d) $-4(2 + x) = 8$

જ. $-4(2 + x) = 8$

$$\therefore 2 + x = \frac{8}{-4}$$

$$\therefore 2 + x = -2$$

$$\therefore x = -2 - 2$$

$$\therefore x = -4$$

(e) $4(2 - x) = 8$

જ. $4(2 - x) = 8$

$$\therefore 2 - x = \frac{8}{4}$$

$$\therefore 2 - x = 2$$

$$\therefore -x = 2 - 2$$

$$\therefore -x = 0$$

$$\therefore x = 0$$

3. નીચેનાં સમીકરણો ઉકેલો :

(a) $4 = 5(p - 2)$

જ. $4 = 5(p - 2)$

$$\therefore 4 = 5 \times p - 5 \times 2$$

$$\therefore 4 = 5p - 10$$

$$\therefore 5p - 10 = 4$$

$$\therefore 5p = 4 + 10$$

$$\therefore 5p = 14$$

$$\therefore p = \frac{14}{5}$$

(b) $-4 = 5(p - 2)$

∴ $-4 = 5(p - 2)$

$$\therefore -4 = 5 \times p - 5 \times 2$$

$$\therefore -4 = 5p - 10$$

$$\therefore 5p - 10 = -4$$

$$\therefore 5p = -4 + 10$$

$$\therefore 5p = 6$$

$$\therefore p = \frac{6}{5}$$

(c) $16 = 4 + 3(t + 2)$

∴ $16 = 4 + 3(t + 2)$

$$\therefore 16 - 4 = 3(t + 2)$$

$$\therefore 3(t + 2) = 12$$

$$\therefore (t + 2) = \frac{12}{3}$$

$$\therefore t + 2 = 4$$

$$\therefore t = 4 - 2$$

$$\therefore t = 2$$

(d) $4 + 5(p - 1) = 34$

∴ $4 + 5(p - 1) = 34$

$$\therefore (p - 1) = 34 - 4$$

$$\therefore p - 1 = 30$$

$$\therefore p = 30 + 1$$

$$\therefore p = 31$$

(e) $0 = 16 + 4(m - 6)$

∴ $0 = 16 + 4(m - 6)$

$$\therefore 0 - 16 = 4(m - 6)$$

$$\therefore 4(m - 6) = -16$$

$$\therefore m - 6 = \frac{-16}{4}$$

$$\therefore m - 6 = -4$$

$$\therefore m = -4 + 6$$

$$\therefore m = 2$$

4. (a) $x = 2$ થી શરૂ કરીને 3 સમીકરણ બનાવો.
જ.

(i) $x = 2$

સમીકરણની બંને બાજુને 10 વડે ગુણતાં,

$$\therefore 10x = 20$$

સમીકરણની બંને બાજુએ 2 ઉમેરતાં,

$$\therefore 10x + 2 = 22$$

(ii) $x = 2$

સમીકરણની બંને બાજુને 5 વડે ગુણતાં,

$$\therefore 5x = 10$$

સમીકરણની બંને બાજુએ 3 બાદ કરતાં,

$$\therefore 5x - 3 = 10 - 3$$

$$\therefore 5x - 3 = 7$$

(iii) $x = 2$

સમીકરણની બંને બાજુને 5 વડે ભાગતાં,

$$\therefore \frac{x}{5} = \frac{2}{5}$$

(a) $x = -2$ થી શરૂ કરીને 3 સમીકરણ બનાવો.
જ.

(i) $x = -2$

સમીકરણની બંને બાજુને 3 વડે ગુણતાં,

$$\therefore 3x = -6$$

(ii) $x = -2$

સમીકરણની બંને બાજુને 3 વડે ગુણતાં,

$$\therefore 3x = -6$$

સમીકરણની બંને બાજુએ 7 ઉમેરતાં,

$$\therefore 3x + 7 = -6 + 7$$

$$\therefore 3x + 7 = 1$$

(iii) $x = -2$

સમીકરણની બંને બાજુને 3 વડે ગુણતાં,

$$\therefore 3x = -6$$

સમીકરણની બંને બાજુએ 10 ઉમેરતાં,

$$\therefore 3x + 10 = -6 + 10$$

$$\therefore 3x + 10 = 4$$