



**SpeedLabs**

**MATHS**

**CBSE 7<sup>th</sup>**

**TEEVRA EDUTECH PVT. LTD.**

# Simple Equations

## Exercise-4.3

**Q.1** Solve the following equations.

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

(b)  $5t + 28 = 10$

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

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

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

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

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

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

(i)  $\frac{31}{2} = \frac{2}{3}$

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

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

$$2y = \frac{37}{2} - \frac{5}{2} = \frac{32}{2} = 16 \text{ (Transposing } \frac{5}{2} \text{ to R.H.S.)}$$

Dividing both sides by 2,

$$y = \frac{16}{2} = 8$$

(b)  $5t + 28 = 10$

$$5t = 10 - 28 = -18 \text{ (Transposing 28 to R.H.S.)}$$

Dividing both sides by 5,

$$t = \frac{-18}{5}$$

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

$$\frac{a}{5} = 2 - 3 = -1 \text{ (Transposing 3 to R.H.S.)}$$

Multiplying both sides by 5,

$$a = -1 \times 5 = -5$$

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

$$\frac{q}{4} = -2 \text{ (Transposing 7 to R.H.S.)}$$

Multiplying both sides by 4,

$$q = -8$$

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

Multiplying both sides by 2,

$$5x = -10 \times 2 = -20$$

Dividing both sides by 5,

$$x = \frac{-20}{5} = -4$$

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

Multiplying both sides by 2,

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

Dividing both sides by 5,

$$x = \frac{25}{4} \times \frac{1}{5} = \frac{5}{2}$$

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

$$7m = 13 - \frac{19}{2} = \frac{26-19}{2} \text{ (Transposing } \frac{19}{2} \text{ to R.H.S.)}$$

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

Dividing both sides by 7,

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

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

$$6z = -2 - 10 = -12 \text{ (Transposing 10 to R.H.S.)}$$

Dividing both sides by 6,

$$z = \frac{-12}{6} = -2$$

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

Multiplying both sides by 2,

$$3l = \frac{2}{3} \times 2 = \frac{4}{3}$$

Dividing both sides by 3,

$$l = \frac{4}{3} \times \frac{1}{3} = \frac{4}{9}$$

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

$$\frac{2b}{3} = 3 + 5 = 8 \text{ (Transposing } -5 \text{ to R.H.S.)}$$

Multiplying both sides by 3,

$$2b = 8 \times 3 = 24$$

Dividing both sides by 2,

$$b = \frac{24}{2} = 12$$

**Q.2** Solve the following equations.

$$(a) 2(x + 4) = 12 \quad (b) 3(n - 5) = 21 \quad (c) 3(n - 5) = -21$$

$$(d) -4(2 + x) = 8 \quad (e) 4(2 - x) = 8$$

**Sol:** (a)  $2(x + 4) = 12$

Dividing both sides by 2,

$$x + 4 = \frac{12}{2} = 6$$

$$x = 6 - 4 = 2 \text{ (Transposing 4 to R.H.S.)}$$

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

Dividing both sides by 3,

$$n - 5 = \frac{21}{3} = 7$$

$$n = 7 + 5 = 12 \text{ (Transposing } -5 \text{ to R.H.S.)}$$

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

Dividing both sides by 3,

$$n - 5 = \frac{-21}{3} = -7$$

$$n = -7 + 5 = -2 \text{ (Transposing } -5 \text{ to R.H.S.)}$$

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

Dividing both sides by  $-4$ ,

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

$$x = -2 - 2 = -4 \text{ (Transposing } 2 \text{ to R.H.S.)}$$

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

Dividing both sides by 4,

$$2 - x = 2$$

$$-x = 2 - 2 \text{ (Transposing } 2 \text{ to R.H.S.)}$$

$$-x = 0$$

$$x = 0$$

**Q.3** Solve the following equations.

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

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

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

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

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

**Sol:** (a)  $4 = 5(p - 2)$

Dividing both sides by 5,

$$\frac{4}{5} = p - 2$$

$$\frac{4}{5} + 2 = p \text{ (Transposing } -2 \text{ to L.H.S.)}$$

$$\frac{4+10}{5} = p$$

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

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

Dividing both sides by 5,

$$-\frac{4}{5} = p - 2$$

$$-\frac{4}{5} + 2 = p$$

$$\frac{-4+10}{5} = p$$

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

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

$$16 - 4 = 3(t + 2) \text{ (Transposing 4 to L.H.S.)}$$

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

Dividing both sides by 3,

$$\frac{12}{3} = t + 2$$

$$4 = t + 2$$

$$4 - 2 = t \text{ (Transposing 2 to L.H.S.)}$$

$$2 = t$$

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

$$5(p - 1) = 34 - 4 = 30 \text{ (Transposing 4 to R.H.S.)}$$

Dividing both sides by 5,

$$p - 1 = \frac{30}{5} = 6$$

$$p = 6 + 1 = 7 \text{ (Transposing } -1 \text{ to R.H.S.)}$$

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

$$0 = 16 + 4m - 24$$

$$0 = -8 + 4m$$

$$4m = 8 \text{ (Transposing } -8 \text{ to L.H.S.)}$$

Dividing both sides by 4,

$$m = 2$$

**Q.4** (a) Construct 3 equations starting with  $x = 2$

(b) Construct 3 equations starting with  $x = -2$

**Sol:** (a)  $x = 2$

Multiplying both sides by 5,

$$5x = 10 \text{ (i)}$$

Subtracting 3 from both sides,

$$5x - 3 = 10 - 3$$

$$5x - 3 = 7 \text{ (ii)}$$

Dividing both sides by 2,

$$(b) x = -2$$

Subtracting 2 from both sides,

$$x - 2 = -2 - 2$$

$$x - 2 = -4 \text{ (i)}$$

Again,  $x = -2$

Multiplying by 6,

$$6 \times x = -2 \times 6$$

$$6x = -12$$

Subtracting 12 from both sides,

$$6x - 12 = -12 - 12$$

$$6x - 12 = -24 \text{ (ii)}$$

Adding 24 to both sides,

$$6x - 12 + 24 = -24 + 24$$

$$6x + 12 = 0 \text{ (iii)}$$