

CBSE Class –VII Mathematics
NCERT Solutions
Simple Equations (Ex. 4.3)

Question 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) $\frac{3l}{2} = \frac{2}{3}$

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

Answer: (a) $2y + \frac{5}{2} = \frac{37}{2} \Rightarrow 2y = \frac{37}{2} - \frac{5}{2} \Rightarrow 2y = \frac{37-5}{2}$

$$\Rightarrow 2y = \frac{32}{2} \Rightarrow 2y = 16 \Rightarrow y = \frac{16}{2}$$

$$\Rightarrow y = 8$$

(b) $5t + 28 = 10 \Rightarrow 5t = 10 - 28 \Rightarrow 5t = -18$

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

(c) $\frac{a}{5} + 3 = 2 \Rightarrow \frac{a}{5} = 2 - 3 \Rightarrow \frac{a}{5} = -1$

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

$$(d) \frac{q}{4} + 7 = 5 \Rightarrow \frac{q}{4} = 5 - 7 \Rightarrow \frac{q}{4} = -2$$

$$\Rightarrow q = -2 \times 4 \Rightarrow q = -8$$

$$(e) \frac{5}{2}x = 10 \Rightarrow 5x = 10 \times 2 \Rightarrow 5x = 20$$

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

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

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

$$(g) 7m + \frac{19}{2} = 13 \Rightarrow 7m = 13 - \frac{19}{2} \Rightarrow 7m = \frac{26-19}{2}$$

$$\Rightarrow 7m = \frac{7}{2} \Rightarrow m = \frac{7}{2 \times 7} \Rightarrow m = \frac{1}{2}$$

$$(h) 6z + 10 = -2 \Rightarrow 6z = -2 - 10 \Rightarrow 6z = -12$$

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

$$(i) \frac{3l}{2} = \frac{2}{3} \Rightarrow 3l = \frac{2}{3} \times 2 \Rightarrow 3l = \frac{4}{3}$$

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

$$(j) \frac{2b}{3} - 5 = 3 \Rightarrow \frac{2b}{3} = 3 + 5 \Rightarrow \frac{2b}{3} = 8$$

$$\Rightarrow 2b = 8 \times 3 \Rightarrow 2b = 24 \Rightarrow b = \frac{24}{2}$$

$$\Rightarrow b = 12$$

Question 2. Solve the following equations:

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

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

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

$$(d) 3 - 2(2 - y) = 7$$

$$(e) -4(2 - x) = 9$$

$$(f) 4(2 - x) = 9$$

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

$$(h) 34 - 5(p - 1) = 4$$

Answer: (a) $2(x + 4) = 12 \Rightarrow x + 4 = \frac{12}{2} \Rightarrow x + 4 = 6$

$$\Rightarrow x = 6 - 4 \Rightarrow x = 2$$

$$(b) \Rightarrow n = 7 + 5 \Rightarrow n = 12$$

$$(c) \Rightarrow n = -7 + 5 \Rightarrow n = -2$$

$$(d) \Rightarrow 2 - y = \frac{4}{-2} \Rightarrow 2 - y = -2 \Rightarrow -y = -2 - 2$$

$$\Rightarrow -y = -4 \Rightarrow y = 4$$

$$(e) \Rightarrow 4x = 9 + 8 \Rightarrow 4x = 17 \Rightarrow x = \frac{17}{4}$$

$$(f) \Rightarrow -4x = 9 - 8 \Rightarrow -4x = 1 \Rightarrow x = \frac{-1}{4}$$

$$(g) \Rightarrow p - 1 = \frac{30}{5}$$

$$\Rightarrow p - 1 = 6$$

$$\Rightarrow p = 6 + 1$$

$$\Rightarrow p = 7$$

$$(h) \Rightarrow p - 1 = \frac{-30}{-5}$$

$$\Rightarrow p - 1 = 6$$

$$\Rightarrow p = 6 + 1$$

$$\Rightarrow p = 7$$

Question 3. Solve the following equations:

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

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

$$(c) -16 = -5(2 - p)$$

(d) $10 = 4 + 3(t + 2)$

(e) $28 = 4 + 3(t + 5)$

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

Answer: (a) $2(x + 4) = 12 \Rightarrow x + 4 = \frac{12}{2} \Rightarrow x + 4 = 6$

$\Rightarrow x = 6 - 4 \Rightarrow x = 2$

(b) $3(n - 5) = 21 \Rightarrow n - 5 = \frac{21}{3} \Rightarrow n - 5 = 7$

$\Rightarrow n = 7 + 5 \Rightarrow n = 12$

(c) $3(n - 5) = -21 \Rightarrow n - 5 = \frac{-21}{3} \Rightarrow n - 5 = -7$

$\Rightarrow n = -7 + 5 \Rightarrow n = -2$

(d) $3 - 2(2 - y) = 7 \Rightarrow -2(2 - y) = 7 - 3 \Rightarrow -2(2 - y) = 4$

$\Rightarrow 2 - y = \frac{4}{-2} \Rightarrow 2 - y = -2 \Rightarrow -y = -2 - 2$

$\Rightarrow -y = -4 \Rightarrow y = 4$

(e) $-4(2 - x) = 9 \Rightarrow -4 \times 2 - x \times (-4) = 9 \Rightarrow -8 + 4x = 9$

$\Rightarrow 4x = 9 + 8 \Rightarrow 4x = 17 \Rightarrow x = \frac{17}{4}$

(f) $4(2 - x) = 9 \Rightarrow 4 \times 2 - x \times (4) = 9 \Rightarrow 8 - 4x = 9$

$\Rightarrow -4x = 9 - 8 \Rightarrow -4x = 1 \Rightarrow x = \frac{-1}{4}$

(g) $4 + 5(p - 1) = 34 \Rightarrow 5(p - 1) = 34 - 4 \Rightarrow 5(p - 1) = 30$

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

$\Rightarrow p = 7$

(h) $34 - 5(p - 1) = 4 \Rightarrow -5(p - 1) = 4 - 34 \Rightarrow -5(p - 1) = -30$

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

$\Rightarrow p = 7$

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

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

Answer: (a) 3 equations starting with $x = 2$.

(i) $x = 2$

Multiplying both sides by 10, $10x = 20$

Adding 2 both sides $10x + 2 = 20 + 2 = 10x + 2 = 22$

(ii) $x = 2$

Multiplying both sides by 5 $5x = 10$

Subtracting 3 from both sides $5x - 3 = 10 - 3 = 5x - 3 = 7$

(iii) $x = 2$

Dividing both sides by 5 $\frac{x}{5} = \frac{2}{5}$

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

(i) $x = -2$

Multiplying both sides by 3 $3x = -6$

(ii) $x = -2$

Multiplying both sides by 3 $3x = -6$

Adding 7 to both sides $3x + 7 = -6 + 7 = 3x + 7 = 1$

(iii) $x = -2$

Multiplying both sides by 3 $3x = -6$

Adding 10 to both sides $3x + 10 = -6 + 10 = 3x + 10 = 4$