Board – CBSE	Class – 7th	Topic – Simple Equations 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) $\frac{3l}{2} = \frac{2}{3}$

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

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

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

Dividing both sides by 2,

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

(b) $5t + 28 = 10$

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

Dividing both sides by 5,

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

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

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

Multiplying both sides by 5,

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

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

$\frac{q}{4} = -2$ (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) $7m + \frac{19}{2} = 13$

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

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

Dividing both sides by 7,

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

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

$6z = -2 - 10 = -12$ (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) $\frac{2b}{3} - 5 = 3$

$\frac{2b}{3} = 3 + 5 = 8$ (Transposing -5 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) $2(x + 4) = 12$ (b) $3(n - 5) = 21$ (c) $3(n - 5) = -21$

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

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

Dividing both sides by 2,

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

$x = 6 - 4 = 2$ (Transposing 4 to R.H.S.)

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

Dividing both sides by 3,

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

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

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

Dividing both sides by 3,

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

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

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

Dividing both sides by -4,

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

$x = -2 - 2 = -4$ (Transposing 2 to R.H.S.)

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

Dividing both sides by 4,

$2 - x = 2$

$-x = 2 - 2$ (Transposing 2 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,

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

$\frac{4}{5} + 2 = p$ (Transposing – 2 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) $16 = 4 + 3(t + 2)$

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

$12 = 3(t + 2)$

Dividing both sides by 3,

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

$4 = t + 2$

$4 - 2 = t$ (Transposing 2 to L.H.S.)

$2 = t$

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

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

Dividing both sides by 5,

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

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

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

$0 = 16 + 4m - 24$

$0 = -8 + 4m$

$4m = 8$ (Transposing -8 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,

$5x = 10$ ---------- (eqn. 1)

Subtracting 3 from both sides,

$5x - 3 = 10 - 3$

$5x - 3 = 7$ ---------- (eqn. 2)

Divide both sides by 5

$(5x/5) - (3/5) = (7/5)$

$x - (3/5) = (7/5)$ ----------(eqn. 3)

(b) $x = -2$

Subtracting 2 from both sides,

$x - 2 = -2 - 2$

$x - 2 = -4$ ---------- (eqn. 1)

Again, $x = -2$

Multiplying by 6,

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

$6x = -12$

Subtracting 12 from both sides,

$6x - 12 = -12 - 12$

$6x - 12 = -24$ ---------- (eqn. 2)

Adding 24 to both sides,

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

$6x + 12 = 0$ ---------- (eqn. 3)