CLASS NOTES-ANSWERS

EXERCISE 4.3

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

Transposing $\frac{5}{2}$ to R.H.S we get,

$2y = \frac{37}{2} - \frac{5}{2}$

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

$2y = 16$

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

$y = 8$

(b) $5t + 28 = 10$

Transposing 28 to R.H.S we get,

$5t = 10 - 28$

$5t = -18$

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

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

Transposing 28 to R.H.S we get,

$\frac{a}{5}$ = 2 – 3

$\frac{a}{5}$ = - 1

a = -1 × 5

a = - 5

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

Transposing 28 to R.H.S we get,

$\frac{q}{4}$ = 5 – 7

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

q = -2 × 4

q = - 8

(e) $\frac{5}{2}$ x = –5

5x = - 5 × 2

5x = - 10

x = $\frac{-10}{5}$

x = - 2

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

5 x = $\frac{25}{4}$ × 2

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

x = $\frac{25}{2}$ × $\frac{1}{5}$

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

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

Transposing $\frac{19}{2}$ to R.H.S we get,

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

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

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

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

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

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

Transposing 10 to R.H.S we get,

$6z = -2 - 10$

$6z = -12$

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

$z = -2$

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

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

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

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

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

Transposing - 5 to R.H.S we get,

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

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

$2b = 8 \times 3$

$2\,b = 24$

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

$b = 12$

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) $4(2 - x) = 8$

Answer:

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

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

$x + 4 = 6$

$x = 6 - 4$

$x = 2$

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

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

$n - 5 = 7$

$n = 7 + 5$

$n = 12$

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

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

$n - 5 = -7$

$n = -7 + 5$

$n = -2$

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

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

$2 + x = - 2$

$x = -2 – 2$

$x = - 4$

(e) $4(2 – x) = 8$

$2 – x = \dfrac{8}{4}$

$2 – x = 2$

$-x = 2 – 2$

$-x = 0$

$x = 0$

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) $0 = 16 + 4(m – 6)$

Answer:

(a) $4 = 5(p – 2)$

$4 = 5p – 10$

$5p = 4 + 10$

$5p = 14$

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

(b) $– 4 = 5(p – 2)$

$– 4 = 5p – 10$

– 4 + 10 = 5p

6 = 5p

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

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

16 = 4 + 3t + 6

16 – 10 = 3t

6 = 3t

$t = \frac{6}{3}$

t = 2

(d) 4 + 5(p – 1) = 34

4 + 5p – 5 = 34

5p – 1 = 34

5p = 35

$p = \frac{35}{5}$

p = 7

(e) 0 = 16 + 4(m – 6)

0 = 16 + 4m – 24

8 = 4m

$m = \frac{8}{4}$

m = 2

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

(b) Construct 3 equations starting with x = – 2

Answer:

(a) (i) x = 2

Multiplying both sides by 10,

10x = 20

Adding 2 to both sides,

10x + 2 = 20 + 2

10x + 2 = 22

(ii) x = 2

Multiplying both sides by 5,

5x = 10

subtracting 3 to both sides,

5x - 3 = 10 - 3

5x - 3 = 7

(iii) x = 2

Multiplying both sides by 2,

2x = 4

subtracting 3 to both sides,

2x - 3 = 4 - 3

2x - 3 = 1

(b) (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, we get.

$3x + 7 = -6 + 7$

$3x + 7 = 1$

(iii) $x = -2$

Multiplying both sides by 3,

$3x = -6$

Adding 10 to both sides, we get

$3x + 10 = -6 + 10$

$3x + 10 = 4$