

## EXERCISE 22 (B)

### Question 1.

Solve:

(i)  $2x + 5 = 17$

(ii)  $3y - 2 = 1$

(iii)  $5p + 4 = 29$

(iv)  $4a - 3 = -27$

(v)  $2z + 3 = -19$

(vi)  $7m - 1 = 20$

(vii)  $2 \cdot 4x - 3 = 4 \cdot 2$

(viii)  $4m + 9 \cdot 4 = 5$

(ix)  $6y + 4 = -4 \cdot 4$

**Solution:**



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$$(i) 2x + 5 = 17$$

$$\Rightarrow 2x = 17 - 5 \Rightarrow 2x = 12$$

$$\Rightarrow x = \frac{12}{2} \Rightarrow x = 6$$

$$(ii) 3y - 2 = 1$$

$$\Rightarrow 3y = 1 + 2 \Rightarrow 3y = 3$$

$$\Rightarrow y = \frac{3}{3} \Rightarrow y = 1$$

$$(iii) 5p + 4 = 29$$

$$\Rightarrow 5p = 29 - 4 \Rightarrow 5p = 25$$

$$\Rightarrow p = \frac{25}{5} \Rightarrow p = 5$$

$$(iv) 4a - 3 = -27$$

$$\Rightarrow 4a = -27 + 3 \Rightarrow 4a = -24$$

$$\Rightarrow a = \frac{-24}{4} \Rightarrow a = -6$$

$$(v) 2z + 3 = -19$$

$$\Rightarrow 2z = -19 - 3 \Rightarrow 2z = -22$$

$$\Rightarrow z = \frac{-22}{2} \Rightarrow z = -11$$

$$(vi) 7m - 1 = 20$$

$$\Rightarrow 7m = 20 + 1 \Rightarrow 7m = 21$$

$$\Rightarrow m = \frac{21}{7} \Rightarrow m = 3$$

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$$(vii) 2 \cdot 4x - 3 = 4 \cdot 2$$

$$\Rightarrow 2 \cdot 4x = 4 \cdot 2 + 3 \Rightarrow 2 \cdot 4x = 7 \cdot 2$$

$$\Rightarrow x = \frac{7 \cdot 2}{2 \cdot 4} \Rightarrow x = 3$$

$$(viii) 4m + 9 \cdot 4 = 5$$

$$\Rightarrow 4m = 5 - 9 \cdot 4 \Rightarrow 4m = -4 \cdot 4$$

$$\Rightarrow m = \frac{-4 \cdot 4}{4} \Rightarrow m = -1 \cdot 1$$

$$(ix) 6y + 4 = -4 \cdot 4$$

$$\Rightarrow 6y = -4 \cdot 4 - 4 \cdot 0 \Rightarrow 6y = -8 \cdot 4$$

$$\Rightarrow y = -\frac{8 \cdot 4}{6}$$

$$\Rightarrow y = -1 \cdot 4$$

### Question 2.

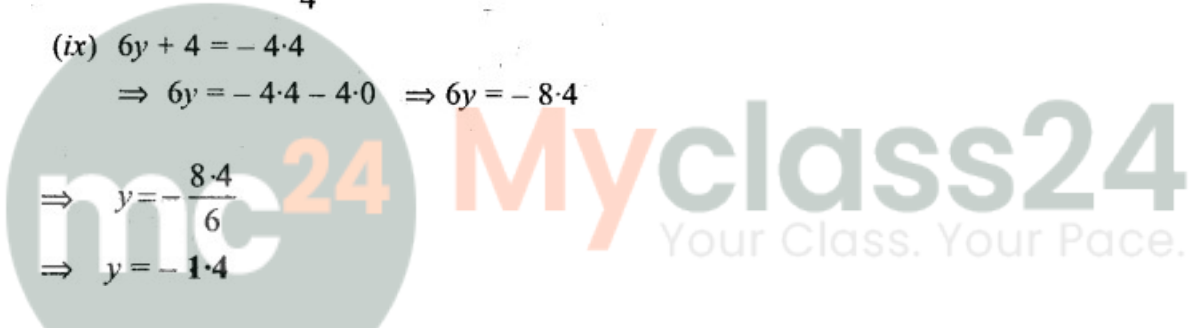
Solve:

$$(i) \frac{x}{3} - 5 = 2 \quad (ii) \frac{y}{2} - 3 = 8$$

$$(iii) \frac{z}{7} + 1 = 2 \frac{1}{2} \quad (iv) \frac{a}{2 \cdot 4} - 5 = 2 \cdot 4$$

$$(v) \frac{b}{1 \cdot 6} + 3 = -2 \cdot 5 \quad (vi) \frac{m}{4} - 4 \cdot 6 = -3 \cdot 1$$

**Solution:**



$$(i) \quad \frac{x}{3} - 5 = 2$$

$$\Rightarrow \frac{x}{3} = 2 + 5 \quad \Rightarrow \frac{x}{3} = 7$$

$$\Rightarrow x = 7 \times 3 \quad \Rightarrow x = 21$$

$$(ii) \quad \frac{y}{2} - 3 = 8$$

$$\Rightarrow \frac{y}{2} = 8 + 3 \quad \Rightarrow \frac{y}{2} = 11$$

$$\Rightarrow y = 11 \times 2 \quad \Rightarrow y = 22$$

$$(iii) \quad \frac{z}{7} + 1 = 2\frac{1}{2}$$

$$\Rightarrow \frac{z}{7} + 1 = \frac{5}{2} \quad \Rightarrow \frac{z}{7} = \frac{5}{2} - 1$$

$$\Rightarrow \frac{z}{7} = \frac{5-2}{2} \quad \Rightarrow \frac{z}{7} = \frac{3}{2}$$

$$\Rightarrow z = \frac{3}{2} \times 7 \quad \Rightarrow z = \frac{21}{2}$$

$$\Rightarrow z = 10\frac{1}{2}$$

$$(iv) \quad \frac{a}{2.4} - 5 = 2.4$$

$$\Rightarrow \frac{a}{2.4} = 2.4 + 5 \quad \Rightarrow \frac{a}{2.4} = 7.4$$

$$\Rightarrow a = 7.4 \times 2.4 \quad \Rightarrow a = 17.76$$

$$(v) \quad \frac{b}{1.6} + 3 = -2.5$$

$$\Rightarrow \frac{b}{1.6} = -2.5 - 3 \quad \Rightarrow \frac{b}{1.6} = -5.5$$

$$\Rightarrow b = -5.5 \times 1.6 \quad \Rightarrow b = -8.80$$

$$(vi) \quad \frac{m}{4} - 4.6 = -3.1$$

$$\Rightarrow \frac{m}{4} = -3.1 + 4.6 \quad \Rightarrow \frac{m}{4} = 1.5$$

$$\Rightarrow m = 1.5 \times 4 \quad \Rightarrow m = 6$$

**Question 3.**

Solve:

$$(i) -8m - 2 = -10$$

$$(ii) 4x + 2x = 3 + 5$$

$$(iii) 4x - x + 5 = 8$$

$$(iv) 6x + 2 = 2x + 10$$

$$(v) 18 - (2a - 12) = 8a$$

$$(vi) 3x + 5 + 2x + 6 + x = 4x + 21$$

$$(vii) 3 \cdot 5x - 9 - 3 = x + 1$$

$$(viii) 8x + 6 + 2x - 4 = 4x + 8$$

$$(ix) -m + (3m - 6m) = -8 - 14$$

$$(x) 5x - 14 = x - (24 + 4x)$$

**Solution:**

$$(i) -8m - 2 = -10$$

$$\Rightarrow -8m = -10 + 2 \Rightarrow -8m = -8$$

$$\Rightarrow m = \frac{-8}{-8} \Rightarrow m = 1$$

$$(ii) 4x + 2x = 3 + 5$$

$$\Rightarrow 6x = 8 \Rightarrow x = \frac{8}{6}$$

$$\Rightarrow x = \frac{4}{3} \Rightarrow x = 1\frac{1}{3}$$

$$(iii) 4x - x + 5 = 8$$

$$\Rightarrow 3x + 5 = 8 \Rightarrow 3x = 8 - 5$$

$$\Rightarrow 3x = 3 \Rightarrow x = \frac{3}{3} = 1$$

$$(iv) 6x + 2 = 2x + 10$$

$$\Rightarrow 6x - 2x = 10 - 2 \Rightarrow 4x = 8$$

$$\Rightarrow x = \frac{8}{4} \Rightarrow x = 2$$

$$(v) 18 - (2a - 12) = 8a$$

$$\Rightarrow 18 - 2a + 12 = 8a$$

$$\Rightarrow -2a - 8a = -18 - 12$$

$$\Rightarrow -10a = -30$$



$$\Rightarrow a = \frac{-30}{-10}$$

$$\Rightarrow a = 3$$

$$(vi) \quad 3x + 5 + 2x + 6 + x = 4x + 21$$

$$\Rightarrow 6x + 11 = 4x + 21$$

$$\Rightarrow 6x - 4x = 21 - 11$$

$$\Rightarrow 2x = 10$$

$$\Rightarrow x = \frac{10}{2}$$

$$\Rightarrow x = 5$$

$$(vii) \quad 3 \cdot 5x - 9 - 3 = x + 1$$

$$\Rightarrow 3 \cdot 5x - x = 1 + 9 + 3$$

$$\Rightarrow 2 \cdot 5x = 13 \quad \Rightarrow x = \frac{13}{2 \cdot 5}$$

$$\Rightarrow x = \frac{13 \times 10}{25} \quad \Rightarrow x = \frac{26}{5} \text{ or } 5 \frac{1}{5}$$

$$(viii) \quad 8x + 6 + 2x - 4 = 4x + 8$$

$$\Rightarrow 10x + 2 = 4x + 8$$

$$\Rightarrow 10x - 4x = 8 - 2$$

$$\Rightarrow 6x = 6 \quad \Rightarrow x = \frac{6}{6}$$

$$\Rightarrow x = 1$$

$$(ix) -m + (3m - 6m) = -8 - 14$$

$$\Rightarrow -m + 3m - 6m = -8 - 14$$

$$\Rightarrow -7m + 3m = -22$$

$$\Rightarrow -4m = -22$$

$$\Rightarrow m = \frac{-22}{-4} \Rightarrow m = \frac{11}{2}$$

$$\Rightarrow m = 5\frac{1}{2}$$

$$(x) 5x - 14 = x - (24 + 4x)$$

$$\Rightarrow 5x - 14 = x - 24 - 4x$$

$$\Rightarrow 5x + 4x - x = -24 + 14$$

$$\Rightarrow 9x - x = -10$$

$$\Rightarrow 8x = -10 \Rightarrow x = \frac{-10}{8}$$

$$\Rightarrow x = -\frac{5}{4} \text{ or } -1\frac{1}{4}$$

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