

Exercise - 22(A)

1. Solve:

(i) $x + 2 = 6$

(ii) $x + 6 = 2$

(iii) $y + 8 = 5$

(iv) $x + 4 = -3$

(v) $y + 2 = -8$

(vi) $b + 2.5 = 4.2$

(vii) $p + 4.6 = 8.5$

(viii) $y + 3.2 = -6.5$

(ix) $a + 8.9 = -12.6$

(x) $x + 2 \frac{1}{3} = 5$

(xi) $z + 2 = 4 \frac{1}{5}$

(xii) $m + 3 \frac{1}{2} = 4 \frac{1}{4}$

(xiii) $x + 2 = 1 \frac{1}{4}$

(xiv) $y + 5 \frac{1}{3} = 4$

(xv) $a + 3 \frac{1}{5} = 1 \frac{1}{2}$

solution:

(i) $x + 2 = 6$

$\Rightarrow x = 6 - 2$

$\Rightarrow x = 4$

$$(ii) x + 6 = 2$$

$$\Rightarrow x = 2 - 6$$

$$\Rightarrow x = -4$$

$$(iii) y + 8 = 5$$

$$\Rightarrow y = 5 - 8$$

$$\Rightarrow y = -3$$

$$(iv) x + 4 = -3$$

$$\Rightarrow x = -3 - 4$$

$$\Rightarrow x = -7$$

$$(v) y + 2 = -8$$

$$\Rightarrow y = -8 - 2$$

$$\Rightarrow y = -10$$

$$(vi) b + 2.5 = 4.2$$

$$\Rightarrow b = 4.2 - 2.5$$

$$\Rightarrow b = 1.7$$

$$(vii) p + 4.6 = 8.5$$

$$\Rightarrow p = 8.5 - 4.6$$

$$\Rightarrow p = 3.9$$

$$(viii) y + 3.2 = -6.5$$

$$\Rightarrow y = -6.5 - 3.2$$

$$\Rightarrow y = -9.7$$

$$(ix) a + 8.9 = -12.6$$

$$\Rightarrow a = -12.6 - 8.9$$

$$\Rightarrow a = -21.5$$

$$(x) \quad x + 2\frac{1}{3} = 5$$

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

$$\Rightarrow x = 5 - \frac{7}{3}$$

$$\Rightarrow x = \frac{15-7}{3}$$

$$\Rightarrow x = \frac{8}{3}$$

$$\Rightarrow x = 2\frac{2}{3}$$

$$(y) \quad z + 2 = 4\frac{1}{5}$$

$$\Rightarrow z + 2 = \frac{21}{5}$$

$$\Rightarrow z = \frac{21}{5} - 2$$

$$\Rightarrow z = \frac{21-10}{5}$$

$$\Rightarrow z = \frac{11}{5}$$

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

$$(xii) m + 3\frac{1}{2} = 4\frac{1}{4}$$

$$\Rightarrow m + \frac{7}{2} = \frac{17}{4}$$

$$\Rightarrow m = \frac{17}{4} - \frac{7}{2}$$

$$\Rightarrow m = \frac{17 - 14}{4}$$

$$\Rightarrow m = \frac{3}{4}$$

$$(xiii) x + 2 = 1\frac{1}{4}$$

$$\Rightarrow x + 2 = \frac{5}{4}$$

$$\Rightarrow x = \frac{5}{4} - 2$$

$$\Rightarrow x = \frac{5 - 8}{4}$$

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

$$(xiv) y + 5\frac{1}{3} = 4$$

$$\Rightarrow y + \frac{16}{3} = 4$$

$$\Rightarrow y = 4 - \frac{16}{3}$$

$$\Rightarrow y = \frac{-12 - 16}{3}$$

$$\Rightarrow y = -\frac{4}{3}$$

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

$$\text{QW) } a + \frac{31}{5} = 1\frac{1}{2}$$

$$\Rightarrow a + \frac{16}{5} = \frac{3}{2}$$

$$\Rightarrow a = \frac{3}{2} - \frac{16}{5}$$

$$\Rightarrow a = \frac{15 - 32}{10}$$

$$\Rightarrow a = -\frac{17}{10}$$

$$\Rightarrow a = -1\frac{7}{10}$$

2. solve :

(i) $x - 3 = 2$

(ii) $m - 2z = -5$

$$F - 2 - d \text{ (iii)}$$

$$M - 2 \cdot 6 - 2 \text{ (vi)}$$

$$2 = \frac{1}{8} \cdot 6 - 2 \text{ (v)}$$

$$2 = -\frac{1}{6} \cdot 6 - 2 \text{ (iv)}$$

$$F \cdot 6 - M \cdot 2 = 2 \text{ (iii)}$$

$$M \cdot 2 = 2 \cdot 1 - 2 \text{ (iv)}$$

$$\frac{1}{8} \cdot M = M - 2 \text{ (v)}$$

$$2 = 2 \cdot 1 - 2$$

: math

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

$$2 + 6 = x \leq$$

$$2 = x \leq$$

$$2 = 6 - 1 \text{ (ii)}$$

$$6 + 2 = 8 \leq$$

$$8 = 8 \leq$$

$$F - 2 - d \text{ (iii)}$$

$$2 + 6 = d \leq$$

$$6 \cdot 1 = d \leq$$

$$M = 2 \cdot 6 - 2 \text{ (vi)}$$

$$2 \cdot 6 + M = 2 \leq$$

$$2 \cdot 1 = 2 \leq$$

$$2 = \frac{1}{6} \cdot 6 - 2 \text{ (v)}$$

(iii) $b - 5 = 7$

(iv) $a - 2 \cdot 5 = -4$

(v) $y - 3 \frac{1}{2} = 6$

(vi) $z - 2 \frac{1}{3} = -6$

(vii) $p - 5 \cdot 4 = 2 \cdot 7$

(viii) $x - 15 = -4 \cdot 9$

(ix) $n - 4 = -4 \frac{1}{5}$

solution:

(i) $x - 3 = 2$

$\Rightarrow x = 2 + 3$

$\Rightarrow x = 5$

(ii) $m - 2 = -5$

$\Rightarrow m = -5 + 2$

$\Rightarrow m = -3$

(iii) $b - 5 = 7$

$\Rightarrow b = 7 + 5$

$\Rightarrow b = 12$

(iv) $a - 2 \cdot 5 = -4$

$\Rightarrow a = -4 + 2 \cdot 5$

$\Rightarrow a = -1 \cdot 5$

(v) $y - 3 \frac{1}{2} = 6$

$$\Rightarrow y - \frac{7}{2} = 6$$

$$\Rightarrow y = 6 + \frac{7}{2}$$

$$\Rightarrow y = \frac{12 + 7}{2}$$

$$\Rightarrow y = \frac{19}{2}$$

$$\Rightarrow y = 9 \frac{1}{2}$$

$$(vi) \quad z - 2 \frac{1}{3} = -6$$

$$\Rightarrow z - \frac{7}{3} = -6$$

$$\Rightarrow z = -6 + \frac{7}{3}$$

$$\Rightarrow z = \frac{-18 + 7}{3}$$

$$\Rightarrow z = \frac{-11}{3}$$

$$\Rightarrow z = -3 \frac{2}{3}$$

$$(vii) \quad p - 5.4 = 2.7$$

$$\Rightarrow p = 2.7 + 5.4$$

$$\Rightarrow p = 8.1$$

$$\begin{aligned} \text{(viii)} \quad x - 1.5 &= -4.9 \\ \Rightarrow x &= -4.9 + 1.5 \\ \Rightarrow x &= -3.4 \end{aligned}$$

$$\begin{aligned} \text{(ix)} \quad n - 4 &= -\frac{41}{5} \\ \Rightarrow n - 4 &= -\frac{21}{5} \end{aligned}$$

$$\Rightarrow n = -\frac{21}{5} + 4$$

$$\Rightarrow n = \frac{-21 + 20}{5}$$

$$\Rightarrow n = -\frac{1}{5}$$

3. solve :

$$\text{(i)} \quad 3x = 12$$

$$\text{(ii)} \quad 2y = 9$$

$$\text{(iii)} \quad 5z = 8.5$$

$$\text{(iv)} \quad 2.5m = 7.5$$

$$\text{(v)} \quad 3.2p = 16$$

$$\text{(vi)} \quad 2q = 4.6$$

solution:

$$(i) 3x = 12$$

$$\Rightarrow x = \frac{12}{3}$$

$$\Rightarrow x = 4$$

$$(ii) 2y = 9$$

$$\Rightarrow y = \frac{9}{2}$$

$$\Rightarrow y = 4\frac{1}{2}$$

$$(iii) 5z = 8.5$$

$$\Rightarrow z = \frac{8.5}{5}$$

$$\Rightarrow z = 1.7$$

$$(iv) 2.5m = 7.5$$

$$\Rightarrow m = \frac{7.5}{2.5}$$

$$\Rightarrow \frac{75}{25} \Rightarrow m = 3$$

$$(v) 3.2p = 16$$

$$\Rightarrow p = \frac{16}{3.2} \Rightarrow p = \frac{16 \times 10}{32}$$

$$\Rightarrow p = 5$$

(vi) $2a = 4.6$

$\Rightarrow a = \frac{4.6}{2}$

$\Rightarrow a = 2.3$

4. solve

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

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

(iii) $\frac{a}{5} = -15$

(iv) $\frac{z}{4} = 3\frac{1}{4}$

(v) $\frac{m}{6} = 2\frac{1}{2}$

(vi) $\frac{n}{7} = -2.8$

solution :

$3x = 12$ (i)
 $3x = 12$ (ii)
 $x = 4$ (iii)
 $3x = 12$ (iv)
 $3x = 12$ (v)
 $3x = 12$ (vi)
 $3x = 12$ (vii)
 $3x = 12$ (viii)
 $3x = 12$ (ix)
 $3x = 12$ (x)
 $3x = 12$ (xi)
 $3x = 12$ (xii)
 $3x = 12$ (xiii)
 $3x = 12$ (xiv)
 $3x = 12$ (xv)
 $3x = 12$ (xvi)
 $3x = 12$ (xvii)
 $3x = 12$ (xviii)
 $3x = 12$ (xix)
 $3x = 12$ (xx)

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

$$\Rightarrow x = 5 \times 2$$

$$\Rightarrow x = 10$$

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

$$\Rightarrow y = -2 \times 3$$

$$\Rightarrow y = -6$$

$$(iii) \frac{a}{5} = -15$$

$$\Rightarrow a = -15 \times 5$$

$$\Rightarrow a = -75$$

$$(iv) \frac{z}{4} = 3 \frac{1}{4}$$

$$\Rightarrow \frac{z}{4} = \frac{13}{4}$$

$$\Rightarrow z = \frac{13}{4} \times 4$$

$$\Rightarrow z = 13$$

$$(v) \frac{m}{6} = 2\frac{1}{2}$$

$$\Rightarrow \frac{m}{6} = \frac{5}{2}$$

$$\Rightarrow m = \frac{5}{2} \times 6$$

$$\Rightarrow m = 15$$

$$(vi) \frac{n}{7} = -2.8$$

$$\Rightarrow n = -2.8 \times 7$$

$$\Rightarrow n = -19.6$$

$$5(i) -2x = 8$$

$$(ii) -3.5y = 14$$

$$(iii) -5z = 4$$

$$(iv) -5 = a + 3$$

$$(v) 2 = p + 5$$

$$(vi) 4.5 = m - 2.7$$

$$(vii) \frac{3.2}{5} = x - 2\frac{1}{3}$$

$$(viii) 5 = m + \frac{39}{7}$$

$$(ix) -2\frac{1}{5} = y - 4$$

solution :

$$(i) 2x = 8$$

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

$$\Rightarrow x = 4$$

$$(ii) -3.5y = 14$$

$$\Rightarrow y = \frac{14}{-3.5}$$

$$\Rightarrow y = \frac{-14 \times 10}{35}$$

$$\Rightarrow y = -4$$

$$(iii) -5z = 4$$

$$\Rightarrow z = \frac{-4}{5}$$

$$\Rightarrow z = -0.8$$

$$(iv) -5 = a + 3$$

$$\Rightarrow a + 3 = -5$$

$$\Rightarrow a = -5 - 3$$

$$\Rightarrow a = -8$$

$$(v) 2 = p + 5$$

$$\Rightarrow p + 5 = 2$$

$$\Rightarrow p = 2 - 5$$

$$\Rightarrow p = -3$$

$$\begin{aligned} \text{(vi)} \quad 4.5 &= m - 2.7 \\ \Rightarrow m - 2.7 &= 4.5 \\ \Rightarrow m &= 4.5 + 2.7 \\ \Rightarrow m &= 7.2 \end{aligned}$$

$$\text{(vii)} \quad 3\frac{2}{5} = x - 2\frac{1}{3}$$

$$\Rightarrow \frac{17}{5} = x - \frac{7}{3}$$

$$\Rightarrow x - \frac{7}{3} = \frac{17}{5}$$

$$\Rightarrow x = \frac{17}{5} + \frac{7}{3}$$

$$\Rightarrow x = \frac{51 + 35}{15}$$

$$\Rightarrow x = \frac{86}{15}$$

$$\Rightarrow x = 5\frac{11}{15}$$

$$\text{(viii)} \quad 5 = m + 3\frac{4}{7}$$

$$\Rightarrow 5 = m + \frac{25}{7}$$

$$\Rightarrow m + \frac{25}{7} = 5$$

$$\Rightarrow m = \frac{5 - 25}{7}$$

$$\Rightarrow m = \frac{35 - 28}{7}$$

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

$$\Rightarrow m = 1 \frac{3}{7}$$

(iv) $-2 \frac{1}{5} = y - 4$

$$\Rightarrow -\frac{11}{5} = y - 4$$

$$\Rightarrow y - 4 = -\frac{11}{5}$$

$$\Rightarrow y = -\frac{11}{5} + 4$$

$$\Rightarrow y = \frac{-11 + 20}{5}$$

$$\Rightarrow y = \frac{9}{5}$$

$$\Rightarrow y = 1 \frac{4}{5}$$

(i) $2x + 3y = 5$
 (ii) $x - 4y = 2$
 (iii) $3x + 2y = 7$
 (iv) $4x - 5y = 10$
 (v) $x - 2y = 3$
 (vi) $2x - 3y = 4$
 (vii) $3x - 4y = 5$
 (viii) $4x - 5y = 6$
 (ix) $5x - 6y = 7$
 (x) $6x - 7y = 8$

• substitution

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

(ii) $x - 4y = 2$
 $x + 4y = 2$
 $x - 4y = 2$
 $8 = 8$
 $x = 2 + 4y$