CHAP-22 SIMPLE LINEAR EQUATIONS

Exercise 22(A)

1. Solve:

i) $x+2=6$

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

$\Rightarrow x=4$

ii) $x+6=2$

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

$\Rightarrow x=-4$

iii) $y+8=5$

Ans $\Rightarrow y+8-8=5-8$

$\Rightarrow y=-3$

iv) $x+4=-3$

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

$\Rightarrow x=-7$

v) $y+2=-8$

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

$\Rightarrow y=-10$

vi) $b+2.5=4.2$

Ans $\Rightarrow b+2.5-2.5=4.2-2.5$

$\Rightarrow b=1.7$

vii) $p+4.6=8.5$

$\Rightarrow p+4.6-4.6=8.5-4.6$

$\Rightarrow p=3.9$

viii) $y+3.2=-6.5$

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

$\Rightarrow y=-9.7$

ix) $a+8.4=-12.6$

$\Rightarrow a+8.4-8.4=-12.6-8.4$

$\Rightarrow a=-21.5$

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

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

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

$\Rightarrow x=\frac{5}{1}-\frac{7}{3}$

$\Rightarrow x = \frac{5}{1} - \frac{7}{3}$

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

$\Rightarrow x = \frac{8}{3}$ ✓

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

$\Rightarrow z + 2 - 2 = \frac{21}{5} - \frac{2}{1}$

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

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

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

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

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

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

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

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

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

$\Rightarrow x + 2 - 2 = \frac{5}{4} - \frac{2}{1}$

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

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

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

$\Rightarrow y + \frac{16}{3} = \frac{4}{1}$

$\Rightarrow y + \frac{16}{3} - \frac{16}{3} = \frac{4}{1} - \frac{16}{3}$

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

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

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

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

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

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

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

2. Solve:

i) $x - 3 = 2$

$\Rightarrow x - 3 + 3 = 2 + 3$

$\Rightarrow x = 5$

ii) $m - 2 = -5$

$\Rightarrow m - 2 + 2 = -5 + 2$

$\Rightarrow m = -3$

iii) $b - 5 = 7$

$\Rightarrow b - 5 + 5 = 7 + 5$

$\Rightarrow b = 12$

iv) $a - 2.5 = -4$

$\Rightarrow a - 2.5 + 2.5 = -4 + 2.5$

$\Rightarrow a = -1.5$

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

$\Rightarrow y - 3\frac{1}{2} + 3\frac{1}{2} = \frac{6}{1} + 3\frac{1}{2}$

$\Rightarrow y - \frac{7}{2} + \frac{7}{2} = \frac{6}{1} + \frac{7}{2}$

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

$\Rightarrow y = \frac{19}{2} = 9\frac{1}{2}$.

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

$\Rightarrow z - \frac{7}{3} + \frac{7}{3} = \frac{-6}{1} + \frac{7}{3}$

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

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

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

vii) $p - 5.4 = 2.7$

$\Rightarrow p - 5.4 + 5.4 = 2.7 + 5.4$

$\Rightarrow p = 8.1$

viii) $x - 1.5 = -4.9$

$\Rightarrow x - 1.5 + 1.5 = -4.9 + 1.5$

$\Rightarrow x = -3.4$

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

$\Rightarrow n - 4 + 4 = \frac{21}{5} + \frac{4}{1}$

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

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

2 Solve

i) $2x = 12$ ii) $4y = 7$ iii) $15x = 16$

$\Rightarrow \frac{2x}{2} = \frac{12}{2}$ $\Rightarrow 4y = \frac{7}{4}$ $\Rightarrow \frac{15x}{15} = \frac{16}{15}$

$\Rightarrow x = 6$ $\Rightarrow y = 1\frac{3}{4}$ $\Rightarrow x = 1\frac{1}{15}$

iv) $25m = 75$ v) $32p = 160$

$\Rightarrow \frac{25m}{25} = \frac{75}{25}$ $\Rightarrow \frac{32p}{32} = \frac{160}{32}$

$\Rightarrow p = 5$

$\Rightarrow m = 3$

vi) $2a = 4.6$

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

$\Rightarrow a = 2.3$

4 Solve

i) $\frac{x}{2} = 5$ iii) $\frac{a}{5} = -15$ v) $\frac{m}{6} = 2\frac{1}{2}$

$\Rightarrow \frac{x}{2} \times 2 = 5 \times 2$ $\Rightarrow \frac{a}{5} \times 5 = -15 \times 5$ $\Rightarrow \frac{m}{6} \times 6 = \frac{5}{2} \times 6$

$\Rightarrow m = \frac{30}{2} = 15$

$\Rightarrow x = 10$ $\Rightarrow a = -75$

iv) $\frac{z}{4} = 3\frac{1}{4}$ vi) $\frac{n}{7} = -2.8$

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

$\Rightarrow \frac{z}{4} \times 4 = \frac{13}{4} \times 4$ $\Rightarrow \frac{n}{7} \times 7 = -2.8 \times 7$

$\Rightarrow n = 19.6$

$\Rightarrow \frac{y}{3} \times 3 = -2 \times 3$

$\Rightarrow z = 13$

$\Rightarrow y = -6$

5 Solve

i) $2x = 7$ ii) $4y = 4$

$\Rightarrow \frac{2x}{2} = \frac{7}{2}$ $\Rightarrow \frac{4y}{4} = \frac{4}{4}$

$\Rightarrow x = 4$ $\Rightarrow y = 1$

iii) $5x = 1$ iv) $-8 = 4a$

$\Rightarrow \frac{5x}{5} = \frac{1}{5}$ $\Rightarrow -8 \div 4 = 4a \div 4$

$\Rightarrow x = \frac{1}{5}$ $\Rightarrow -2 = a$

v) $2 = p+5$ vi) $4.5 = m - 2.7$

$\Rightarrow p + 5 = 2$ $\Rightarrow m - 2.7 = 4.5$

$\Rightarrow p + 5 - 5 = 2 - 5$ $\Rightarrow m - 2.7 + 2.7 = 4.5 + 2.7$

$\Rightarrow p = -3$ $\Rightarrow m = 7.2$

vii) $3\frac{2}{5} = x - 2\frac{1}{3}$ viii) $5 = m + 3\frac{4}{7}$

$\Rightarrow x - \frac{7}{3} = \frac{17}{5}$ $\Rightarrow m + \frac{25}{7} = \frac{5}{1}$

$\Rightarrow x - \frac{7}{3} + \frac{7}{3} = \frac{17}{5} + \frac{7}{3}$ $\Rightarrow m + \frac{25}{7} - \frac{25}{7} = \frac{5}{1} - \frac{25}{7}$

$\Rightarrow x = \frac{51}{15} + \frac{35}{15}$ $\Rightarrow m = \frac{35}{7} - \frac{25}{7}$

$\Rightarrow x = \frac{86}{15}$ $\Rightarrow m = \frac{10}{7} = 1\frac{3}{7}$