Simple linear equations

Ex - 2.2 (A)

1. (i) $x + 2 = 6$

$\Rightarrow x + 2 - 2 = 6 - 2 = 4$

$\Rightarrow x = 4$

(ii) $x + 6 = 2$

$\Rightarrow x + 6 - 6 = 2 - 6 = -4$

$\Rightarrow x = -4$

(iii) $y + 8 = 5$

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

$\Rightarrow y = -3$

(iv) $x + 4 = -3$

$\Rightarrow x + 4 - 4 = -3 - 4 = -7$

$\Rightarrow x = -7$

(v) $y + 2 = -8$

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

$\Rightarrow y = -10$

(vi) $b + 2.5 = 4.2$

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

$\Rightarrow b = 1.7$

(vii) $p + 4.6 = 8.5$

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

$\Rightarrow p = 3.9$

(viii) $y + 3.2 = -6.5$

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

$\Rightarrow y = -9.7$

(ix) $a + 8.9 = -12.6$

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

$\Rightarrow a = -21.5$

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

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

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

$\Rightarrow x = \frac{8}{3} = 2\frac{2}{3}$

(xi)

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

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

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

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

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

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

$\Rightarrow m + \frac{7}{3} - \frac{7}{3} = \frac{17}{4} - \frac{7}{3}$

$\Rightarrow m = \frac{3\times 17 - 4\times 7}{12}$

$\Rightarrow m = \frac{51-28}{12}$

$\Rightarrow m = \frac{23}{12}$

$\Rightarrow m = 1\frac{11}{12}$

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

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

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

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

~~$\Rightarrow x$~~

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

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

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

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

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

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

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

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

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

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

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

$\Rightarrow y - 7/3 + 7/3 = 6 + 7/3$

$\Rightarrow y = \frac{18 + 7}{3}$

$\Rightarrow y = 25/3$

$\Rightarrow y = 8\frac{1}{3}$

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

$\Rightarrow z - 7/3 + 7/3 = -6 + 7/3$

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

$\Rightarrow z = -11/3 = -3\frac{2}{3}$

(vii) $p - 5.4 = 2.7$

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

$\Rightarrow p = 8.2$

(viii) $x - 1.5 = -4.9$

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

$\Rightarrow x = -3.4$

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

$\Rightarrow n - 4 + 4 = -21/5 + 4$

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

$\Rightarrow n = -1/5$

3. (i) $3x = 12$

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

$\Rightarrow x = 4$

(ii) $2y = 9$

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

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

(iii) $5z = 8.5$

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

$\Rightarrow z = 1.7$

(iv) $2.3m = 7.5$

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

$\Rightarrow m = 3$

(v) $3.2p = 16$

$\Rightarrow p = \frac{16}{3.2}$

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

$\Rightarrow p = \frac{16 \times 10}{32} = \frac{160}{32}$

$\Rightarrow p = 5$

(vi) $2a = 4.6$

$\Rightarrow a = \frac{4.6}{2} = 2.3$

$\Rightarrow a = 2.3$

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

$\Rightarrow x = 5 \times 2$

$\Rightarrow x = 10$

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

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

$\Rightarrow y = -6$

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

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

$\Rightarrow a = -75$

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

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

$\Rightarrow m = \frac{5}{2} \times \frac{6}{1}^{3}$

$\Rightarrow m = 15$

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

$\Rightarrow n = -2.8 \times 7$

$\Rightarrow n = -19.6$

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

$\Rightarrow 2x = -8$

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

$\Rightarrow x = -4$

(ii) $-3.5y = 14$

$\Rightarrow 3.5y = -14$

$\Rightarrow y = \frac{-14}{3.5} = \frac{-14}{\frac{35}{10}}$

$\Rightarrow y = \frac{-14}{7} \times \frac{2}{35}$

$\Rightarrow y = -4$

(iii) $-5z = 4$

$\Rightarrow 5z = -4$

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

(iv) $-5 = a + 3$

$\Rightarrow a + 3 = -5$

$\Rightarrow a = -5 - 3$

$\Rightarrow a = -8$

(vi) $2 = p + 5$

$\Rightarrow p + 5 = 2$

$\Rightarrow p = 2 - 5$

$\Rightarrow p = -3$

(vi) $4.5 = m - 2.7$

$\Rightarrow m - 2.7 = 4.5$

$\Rightarrow m = 4.5 + 2.7$

$\Rightarrow m = 7.2$

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

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

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

$\Rightarrow x = \frac{3 \times 17 + 5 \times 7}{15}$

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

$\Rightarrow x = \frac{86}{15} = 5\frac{11}{15}$

(viii) $5 - m = 2\frac{4}{7}$

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

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

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

$\Rightarrow m = \frac{35 - 25}{7}$

$\Rightarrow m = \frac{10}{7}$

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

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

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

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

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

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

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