

# Linear Equations, Part-I Key

①

$$\begin{array}{r} 1a. \quad t - 9.2 = -6.8 \\ \quad \quad + 9.2 \quad + 9.2 \\ \hline \quad \quad t = 2.4 \end{array}$$

$$\begin{array}{r} b. \quad 2x = x - 5 \\ \quad \quad -x \quad -x \\ \hline \quad \quad x = -5 \end{array}$$

$$\begin{array}{r} d. \quad 10 = 8(3y - 4) - 23y + 20 \\ \quad \quad 10 = 24y - 32 - 23y + 20 \\ \quad \quad 10 = y - 12 \\ \quad \quad + 12 \quad \quad + 12 \\ \hline \quad \quad 22 = y \end{array}$$

$$\begin{array}{r} c. \quad 2x + x - b = 2x + 5 \\ \quad \quad 3x - b = 2x + 5 \\ \quad \quad -2x \quad \quad -2x \\ \hline \quad \quad x - b = 5 \\ \quad \quad \quad +6 \quad +6 \\ \hline \quad \quad x = 11 \end{array}$$

$$2a. \quad \frac{-7x}{-7} = \frac{-49}{-7} \Rightarrow x = 7$$

$$b. \quad \frac{1}{8}v = \frac{1}{4} \Rightarrow \frac{\cancel{8}}{1} \cdot \frac{1}{\cancel{8}}v = \frac{1}{4} \cdot \frac{\cancel{8}}{1} \Rightarrow v = \frac{8}{4} \Rightarrow v = 2$$

$$c. \quad \frac{d}{15} = 2 \Rightarrow \frac{\cancel{15}}{1} \cdot \frac{d}{\cancel{15}} = 2 \cdot 15 \Rightarrow d = 30$$

$$\begin{array}{r} 3a. \quad 3x - 1 = 26 \\ \quad \quad + 1 \quad + 1 \\ \hline \quad \quad 3x = 27 \\ \quad \quad \quad \quad \quad \quad \Rightarrow x = 9 \end{array}$$

$$\begin{array}{r} b. \quad -2x + \frac{1}{2} = \frac{7}{2} \\ \quad \quad -\frac{1}{2} \quad -\frac{1}{2} \\ \hline \quad \quad -2x = \frac{7}{2} - \frac{1}{2} = \frac{6}{2} = 3 \end{array}$$

$$\begin{array}{r} -2x = 3 \\ \quad \quad -2 \quad -2 \\ \hline \quad \quad x = -\frac{3}{2} \end{array}$$

$$\begin{array}{r} c. \quad 12x + 30 + 8x - 6 = 10 \\ \quad \quad 20x + 24 = 10 \\ \quad \quad \quad \quad \quad \quad -24 \quad -24 \\ \hline \quad \quad 20x = -14 \end{array}$$

$$\begin{array}{r} \frac{20x}{20} = \frac{-14}{20} \\ \quad \quad x = -\frac{7}{10} \end{array}$$



Cont'd

3d.  $t - 6t = -13 + t - 3t$

$-5t = -13 - 2t$

$\begin{array}{r} +2t \qquad \qquad +2t \\ \hline -3t = -13 \end{array}$

$\frac{-3t}{-3} = \frac{-13}{3}$

$t = -\frac{13}{3}$

e.  $20 = -3(2x+1) + 7x$

$20 = -6x - 3 + 7x$

$20 = x - 3$

$\begin{array}{r} +3 \qquad \qquad +3 \\ \hline 23 = x \end{array}$

$23 = x$

4.  $20 - p$  Since  $p + (20 - p) = 20$

5.  $180 - x$

6. Consecutive integers  $\begin{array}{c} \text{1st} \\ x \end{array}$   $\begin{array}{c} \text{2nd} \\ x+1 \end{array}$   $\begin{array}{c} \text{3rd} \\ x+2 \end{array}$   $\begin{array}{c} \text{4th} \\ x+3 \end{array}$

Sum:  $x + (x+1) + (x+2) + (x+3) = 4x + 6$

Consecutive odd integers  $\begin{array}{c} \text{1st} \\ x \end{array}$   $\begin{array}{c} \text{2nd} \\ x+2 \end{array}$   $\begin{array}{c} \text{3rd} \\ x+4 \end{array}$   $\begin{array}{c} \text{4th} \\ x+6 \end{array}$

(odd #'s are space 2 apart  
3, 5, 7, 9, etc.)

Sum:  $x + (x+2) + (x+4) + (x+6) = 4x + 12$

7.  $3(a + 4.6) = 5a + 2.5$   $a = 6.3?$

$3(6.3 + 4.6) = ? 5(6.3) + 2.5$

$3(10.9) = ? 31.5 + 2.5$

$32.7 = ? 34$

no  $a = 6.3$  is not a solution to the equation