

Name: Key

Algebra Level 1

27 + 14

1. Solve

$$\begin{aligned} \text{a) } \frac{64}{8} &= \frac{8d}{8} \\ 8 &= 1d \quad d=8 \end{aligned}$$

$$\begin{aligned} \text{c) } \frac{e}{7} &= -16(7) \\ 1e &= -112 \quad e = -112 \end{aligned}$$

$$\begin{aligned} \text{b) } -44 &= \frac{p}{-4} \quad (-4) \quad p=176 \\ 176 &= 1p \end{aligned}$$

$$\begin{aligned} \text{d) } \frac{-6y}{-6} &= \frac{-72}{-6} \quad \gamma=12 \\ 1y &= 12 \end{aligned}$$

2. Show whether $x = -15$ Substitute or "plug in" to check this.

$$\text{a) } 7x = -105$$

$$\begin{aligned} 7(-15) &= -105 \\ -105 &= -105 \quad \text{yes} \end{aligned}$$

$$\text{c) } \frac{x}{-3} = -5$$

$$\begin{aligned} \frac{-15}{-3} &= -5 \\ -5 &\neq -5 \quad \text{no} \end{aligned}$$

$$\text{b) } 1 = \frac{x}{-15}$$

$$\begin{aligned} 1 &= \frac{-15}{-15} \\ 1 &= 1 \quad \text{yes} \end{aligned}$$

$$\text{d) } -90 = -6x$$

$$\begin{aligned} -90 &= -6(-15) \\ -90 &\neq 90 \quad \text{no} \end{aligned}$$

3. Solve - show all your steps

$$\text{a) } 3x - \cancel{x} = 7$$

$$\begin{aligned} +\cancel{x} \quad +2 \\ 3x &= 9 \\ \frac{3x}{3} &= \frac{9}{3} \\ x &= 3 \end{aligned}$$

$$\text{c) } 4x + \cancel{x} = -3$$

$$\begin{aligned} -\cancel{x} \quad -1 \\ 4x &= -4 \\ \frac{4x}{4} &= \frac{-4}{4} \\ x &= -1 \end{aligned}$$

$$\text{e) } 23 = 5t + \cancel{x}$$

$$\begin{aligned} -3 \quad -\cancel{x} \\ 20 &= 5t \\ \frac{20}{5} &= \frac{5t}{5} \\ 4 &= t \end{aligned}$$

$$\text{g) } -2f - \cancel{x} = 11$$

$$\begin{aligned} +\cancel{x} \quad +3 \\ -2f &= 14 \\ \frac{-2f}{-2} &= \frac{14}{-2} \\ f &= -7 \end{aligned}$$

$$\text{b) } -2x + \cancel{x} = -5$$

$$\begin{aligned} -\cancel{x} \quad -3 \\ -2x &= -8 \\ \frac{-2x}{-2} &= \frac{-8}{-2} \\ x &= 4 \end{aligned}$$

$$\text{d) } 12 = 5x + 2$$

$$\begin{aligned} -2 \quad -2 \\ 10 &= 5x \\ \frac{10}{5} &= \frac{5x}{5} \\ 2 &= x \end{aligned}$$

$$\text{f) } 3w + 20 = -7$$

$$\begin{aligned} -20 \quad -20 \\ 3w &= -27 \\ \frac{3w}{3} &= \frac{-27}{3} \\ w &= -9 \end{aligned}$$

$$\text{h) } -10 = 2q - 12$$

$$\begin{aligned} +12 \quad +12 \\ 2 &= 2q \\ \frac{2}{2} &= \frac{2q}{2} \\ 1 &= q \end{aligned}$$

4. Solve each equation.

$$\begin{aligned} \text{a) } -3 &= \frac{n}{7} - 7 \\ +7 & \quad +7 \\ (7) 4 &= \frac{n(7)}{7} \\ 28 &= n \end{aligned}$$

$$\begin{aligned} \text{b) } -\cancel{x} + \frac{x}{11} &= -1 \\ +\cancel{x} & \quad +4 \\ (11) \frac{x}{11} &= 3(11) \\ x &= 33 \end{aligned}$$

$$\begin{aligned} \text{c) } \cancel{2x} + \frac{a}{-8} &= 4 \\ -\cancel{2x} & \quad -2 \\ (-8) \frac{a}{-8} &= 2(-8) \\ a &= -16 \end{aligned}$$

5. Solve each equation. Solve two of them by division and two by distribution.

$$\begin{aligned} \text{a) } 42 &= 7(y + 4) \\ \frac{42}{7} & \quad \frac{7}{7} \\ 6 &= y + 4 \\ -4 & \quad -4 \\ 2 &= y \end{aligned}$$

$$\begin{aligned} \text{b) } -4(c - 10) &= 40 \\ \frac{-4}{-4} & \quad \frac{-4}{-4} \\ c - 10 &= -10 \\ +10 & \quad +10 \\ c &= 0 \end{aligned}$$

$$\begin{aligned} \text{c) } -1(r + 8) &= 0 \\ r + 8 &= 0 \\ -8 & \quad -8 \\ r &= -8 \end{aligned}$$

$$\begin{aligned} \text{d) } -18 &= 6(j - 5) \\ \frac{-18}{6} & \quad \frac{6}{6} \\ -3 &= j - 5 \\ +5 & \quad +5 \\ 2 &= j \end{aligned}$$

6. Show whether $x = 4$ is the solution to each equation.

$$\begin{aligned} \text{a) } 2(x + 7) &= 22 \\ 2(11) &= 22 \\ 22 &= 22 \quad \underline{\underline{\text{yes}}} \end{aligned}$$

$$\begin{aligned} \text{b) } 24 &= 8(x - 1) \\ 24 &= 8(-3) \quad \underline{\underline{\text{yes}}} \\ 24 &\neq -24 \quad \underline{\underline{\text{no}}} \end{aligned}$$

$$\begin{aligned} \text{c) } -15 &= -3(x - 9) \\ -15 &= -3(-5) \\ -15 &\neq 15 \quad \underline{\underline{\text{no}}} \end{aligned}$$

$$\begin{aligned} \text{d) } -5(x + 2) &= -30 \\ -5(6) &= -30 \\ -30 &= -30 \quad \underline{\underline{\text{yes}}} \end{aligned}$$