

Answer Key

Multi-Step Equations

Sheet 1

Solve each equation. Verify your answer.

1) $(9) \frac{-4(10-a)}{9} = -4(9)$

$$\begin{array}{r} -4(10-a) = -36 \\ -40 + 4a = -36 \\ +40 \qquad +40 \\ \hline 4a = 4 \\ \frac{4a}{4} = \frac{4}{4} \end{array}$$

$a = 1$

$a = 1$

2) $-2(5x-3) = 2(-3x+5)$

$$\begin{array}{r} -10x + 6 = -6x + 10 \\ +6x \qquad +6x \quad -6 \\ \hline -4x + 6 = 4 \\ -6 \qquad -6 \\ \hline -4x = 4 \\ \frac{-4x}{-4} = \frac{4}{-4} \end{array}$$

$x = -1$

$x = -1$

3) $-11w + 7 + 10w = 19 + 2w$

$$\begin{array}{r} -w + 7 = 19 + 2w \\ +w \qquad +w \\ \hline 7 = 19 + 3w \\ -19 \quad -19 \\ \hline -12 = 3w \\ \frac{-12}{3} = \frac{3w}{3} \end{array}$$

$w = -4$

$-4 = w$

4) $65 = 2(d+1) + 5d$

$$\begin{array}{r} 65 = 2d + 2 + 5d \\ 65 = 7d + 2 \\ -2 \qquad -2 \\ \hline 63 = 7d \\ \frac{63}{7} = \frac{7d}{7} \\ 9 = d \\ d = 9 \end{array}$$

$d = 9$

5) $-2(3n+6) = 3(-n+12)$

$$\begin{array}{r} -6n + (-12) = -3n + 36 \\ +3n \qquad +3n \\ \hline -3n + (-12) = 36 \\ +12 \qquad +12 \\ \hline -3n = 48 \\ \frac{-3n}{-3} = \frac{48}{-3} \end{array}$$

$n = -16$

$n = -16$

6) $4 = \frac{12b+8}{b+24}$

$4(b+24) = \frac{12b+8}{b+24} (b+24)$

$4b + 96 = 12b + 8$

$4b + 88 = 12b$

$b = 11$

$4b + 88 = 12b$

$-4b = -4b$

$88 = 8b$

$11 = b$

7) $-18 + y = 6(2 - 3y + 10) + y$

$$\begin{array}{r} -18 + y = 12 - 18y + 60 + y \\ -18 + y = 72 + (-17y) \\ +17y \qquad +17y \\ \hline -18 + 18y = 72 \\ +18 \qquad +18 \\ \hline 18y = 90 \\ \frac{18y}{18} = \frac{90}{18} \end{array}$$

$y = 5$

$y = 5$

8) $7(2s) - 8(s+6) = 0$

$14s - 8s + 48 = 0$

$6s + 48 = 0$

$$\begin{array}{r} +48 \quad +48 \\ \hline 6s = -48 \\ \frac{6s}{6} = \frac{-48}{6} \end{array}$$

$s = 8$

$s = 8$