

# 7.2 Two-Step Equations

Math 9

## Review of Two-Step Equations

### Part I: Equations with Integers

Solve each equation. Show how you are isolating the variable.

$$\begin{aligned} 2n + 4 &= 18 \\ -4 \quad -4 \\ 2n &= 14 \\ \div 2 \quad \div 2 \\ n &= 7 \end{aligned}$$

$$\begin{aligned} 3x - 8 &= -2 \\ +8 \quad +8 \\ 3x &= 6 \\ \div 3 \quad \div 3 \\ x &= 2 \end{aligned}$$

$$\begin{aligned} -4 + 5y &= 4 \\ +4 \quad +4 \\ 5y &= 8 \\ \div 5 \quad \div 5 \\ y &= \frac{8}{5} \end{aligned}$$

$$\begin{aligned} 3t - 1 &= 20 \\ +1 \quad +1 \\ 3t &= 21 \\ \div 3 \quad \div 3 \\ t &= 7 \end{aligned}$$

$$\begin{aligned} 7k + 3 &= -2 \\ -3 \quad -3 \\ 7k &= -5 \\ \div 7 \quad \div 7 \\ k &= -\frac{5}{7} \end{aligned}$$

$$\begin{aligned} 36 &= 8 - 2a \\ -8 \quad -8 \\ 28 &= -2a \\ \div -2 \quad \div -2 \\ -14 &= a \end{aligned}$$

### Part II: Equations with Decimals

Solve each equation. Show how you are isolating the variable.

$$\begin{aligned} 2 + 12.5m &= 0.55 \\ -2 \quad -2 \\ 12.5m &= -1.45 \\ \div 12.5 \quad \div 12.5 \\ m &= -0.116 \end{aligned}$$

$$\begin{aligned} -0.77 &= -0.1a - 0.45 \\ +0.45 \quad +0.45 \\ -0.32 &= -0.1a \\ \div -0.1 \quad \div -0.1 \\ 3.2 &= a \end{aligned}$$

$$\begin{aligned} 67 &= 5.51 + 4.3d \\ -5.51 \quad -5.51 \\ 61.49 &= 4.3d \\ \div 4.3 \quad \div 4.3 \\ 14.3 &= d \end{aligned}$$

$$\begin{aligned} 6.2 - \frac{x}{1.2} &= 0.38 \\ -6.2 \quad -6.2 \\ -1.2 \cdot \frac{x}{1.2} &= -5.82 \cdot -1.2 \\ x &= 6.984 \end{aligned}$$

### Part III: Equations with Fractions

Solve each equation. Show how you are isolating the variable.

\*clear fractions by multiplying each term by the LCD.

$$\begin{aligned} 9 &= \frac{x}{7} + 1 \\ -1 \quad -1 \\ 7 \cdot 9 &= \frac{x}{7} + 1 \cdot 7 \\ 56 &= x \\ 7 \cdot 9 &= \frac{x}{7} + 7 \\ 63 &= x + 7 \\ -7 \quad -7 \\ 56 &= x \end{aligned}$$

$$\begin{aligned} \left(4k + \frac{2}{5} = -\frac{2}{3}\right) \cdot 15 \\ 60k + \frac{30}{5} &= -\frac{30}{3} \\ 60k + 6 &= -10 \\ -6 \quad -6 \\ 60k &= -16 \\ \div 60 \quad \div 60 \\ k &= -\frac{16}{60} = -\frac{4}{15} \end{aligned}$$

$$\begin{aligned} \frac{x}{3} - 1\frac{3}{4} &= \frac{1}{2} \\ \left(\frac{x}{3} - \frac{7}{4} = \frac{1}{2}\right) \cdot 12 \\ \frac{12x}{3} - \frac{84}{4} &= \frac{12}{2} \\ 4x - 21 &= 6 \\ +21 \quad +21 \\ 4x &= 27 \\ \div 4 \quad \div 4 \\ x &= \frac{27}{4} \end{aligned}$$

$$\begin{aligned} \left(\frac{x}{2} + \frac{x}{3} = 10\right) \cdot 6 \\ \frac{6x}{2} + \frac{6x}{3} &= 60 \\ 3x + 2x &= 60 \\ 5x &= 60 \\ \div 5 \quad \div 5 \\ x &= 12 \end{aligned}$$

$$\begin{aligned} \left(\frac{w}{3} - 2 = -5\right) \cdot 3 \\ w - 6 &= -15 \\ +6 \quad +6 \\ w &= -9 \end{aligned}$$

$$\begin{aligned} \left(\frac{5}{3} - 4e = -\frac{7}{2}\right) \cdot 6 \\ 10 - 24e &= -21 \\ -10 \quad -10 \\ -24e &= -31 \\ \div -24 \quad \div -24 \\ e &= \frac{31}{24} \end{aligned}$$

$$\begin{aligned} \left(\frac{x}{2} + \frac{2}{5} = \frac{3}{4}\right) \cdot 20 \\ 10x + 8 &= 15 \\ -8 \quad -8 \\ 10x &= 7 \\ \div 10 \quad \div 10 \\ x &= \frac{7}{10} \end{aligned}$$

$$\begin{aligned} \left(\frac{y}{2} - \frac{y}{5} = 6\right) \cdot 10 \\ 5y - 2y &= 60 \\ 3y &= 60 \\ \div 3 \quad \div 3 \\ y &= 20 \end{aligned}$$

Assignment: p.311 #7 - 12