

# Solving Multi-Step Equations

## Variables on Both Sides - Negative Coefficients

Name: \_\_\_\_\_ Date: \_\_\_\_\_



Solve the equations.

(1)  $12x - 100 = 104 - 5x$

(2)  $-111 - 12x = 109 - x$

(3)  $-62 - 3x = -12x + 118$

(4)  $-2x - 18 = -4x + 24$

(5)  $-84 - 12x = -2x + 136$

(6)  $-21 - 8x = -11x + 15$

(7)  $-x - 69 = 8x + 84$

(8)  $-13 - 9x = 8 - 10x$

(9)  $3x - 61 = 135 + 10x$

(10)  $-10x - 9 = 17 - 8x$

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Variables on Both Sides - Negative Coefficients

## ANSWER KEY



Solve the equations.

$$\begin{aligned}(1) \quad 12x - 100 &= 104 - 5x \\ -100 + 17x &= 104 \\ 17x &= 204 \\ x &= 12\end{aligned}$$

$$\begin{aligned}(2) \quad -111 - 12x &= 109 - x \\ -111 - 11x &= 109 \\ -11x &= 220 \\ x &= -20\end{aligned}$$

$$\begin{aligned}(3) \quad -62 - 3x &= -12x + 118 \\ -62 + 9x &= 118 \\ 9x &= 180 \\ x &= 20\end{aligned}$$

$$\begin{aligned}(4) \quad -2x - 18 &= -4x + 24 \\ -18 + 2x &= 24 \\ 2x &= 42 \\ x &= 21\end{aligned}$$

$$\begin{aligned}(5) \quad -84 - 12x &= -2x + 136 \\ -84 - 10x &= 136 \\ -10x &= 220 \\ x &= -22\end{aligned}$$

$$\begin{aligned}(6) \quad -21 - 8x &= -11x + 15 \\ -21 + 3x &= 15 \\ 3x &= 36 \\ x &= 12\end{aligned}$$

$$\begin{aligned}(7) \quad -x - 69 &= 8x + 84 \\ -69 - 9x &= 84 \\ -9x &= 153 \\ x &= -17\end{aligned}$$

$$\begin{aligned}(8) \quad -13 - 9x &= 8 - 10x \\ -13 + x &= 8 \\ x &= 21\end{aligned}$$

$$\begin{aligned}(9) \quad 3x - 61 &= 135 + 10x \\ -61 - 7x &= 135 \\ -7x &= 196 \\ x &= -28\end{aligned}$$

$$\begin{aligned}(10) \quad -10x - 9 &= 17 - 8x \\ -9 - 2x &= 17 \\ -2x &= 26 \\ x &= -13\end{aligned}$$