

Solve AND check:

1. $x - 9 = -20$

$$+9 \quad +9$$

$$x = -11$$

$$-11 - 9 = -20$$

$$-20 = -20$$

3. $-9g = -36$

$$-9 \quad -9$$

$$+g = 4$$

Warm Up

2. $-22 + r = -30$

$$+22 \quad +22$$

$$r = -8$$

4. $\frac{f}{3} = -27$

$$f = -81$$

$$\frac{-81}{3} = -27$$

$$-27 = -27$$

Solving Two Step Equations

Solve Two-Step Equations

- Solve equations by applying the inverse operation.

*To Isolate the variable, always undo addition and subtraction before multiplication and division.

Example:

$$5x + 8 = 23$$

$$\begin{array}{r} -8 \\ -8 \end{array}$$

$$\begin{array}{r} 5x = 15 \\ \hline 5 \end{array}$$

$$x = 3$$

ck:

$$\begin{array}{r} 5x + 8 = 23 \\ 5 \cdot 3 + 8 = 23 \\ 15 + 8 = 23 \\ 23 = 23 \end{array}$$

$$\frac{x}{3} - 6 = 8$$

$$\begin{array}{r} +6 \\ +6 \end{array}$$

$$\begin{array}{r} 3 \cdot \frac{x}{3} = 14 \cdot 3 \\ \hline 1 \end{array}$$

$$x = 42$$

ck:

$$\frac{x}{3} - 6 = 8$$

$$\frac{42}{3} - 6 = 8$$

$$14 - 6 = 8$$

$$8 = 8$$

$$-8 = 13 - 3d$$

$$\begin{array}{r} -13 \quad -13 \\ -21 = -3d \\ \hline -3 \quad -3 \\ 7 = d \end{array}$$



$$\frac{2}{3}x + 5 = 15$$

$$\begin{array}{r} -5 \quad -5 \\ \cancel{21} \cdot \frac{2}{3}x = \cancel{10} \cdot \frac{3}{1} \\ \hline \end{array}$$

$$1x = 15$$

$$x = 15$$

$$\begin{array}{l} \frac{2}{3}x + 5 = 15 \\ \frac{2}{3}(15) + 5 = 15 \\ 10 + 5 = 15 \\ 15 = 15 \end{array}$$

$$5 + \frac{y}{8} = -3$$

$$y = -64$$

Handwritten work in red ink showing the steps to solve for y:

$$5 + \frac{y}{8} = -3$$

$$5 + \frac{y}{8} - 5 = -3 - 5$$

$$\frac{y}{8} = -8$$

$$\frac{y}{8} \cdot 8 = -8 \cdot 8$$

$$y = -64$$

$$11 = 2b + 17$$

Handwritten work in green ink showing the steps to solve for b:

$$11 = 2b + 17$$

$$11 - 17 = 2b + 17 - 17$$

$$-6 = 2b$$

$$\frac{-6}{2} = \frac{2b}{2}$$

$$-3 = b$$

$$6p - 5 = -17$$

$$p = -2$$

$$16 = 5x - 9$$

$$\frac{3}{5}x - 9 = 18$$

Handwritten work in red ink showing the steps to solve for x:

$$\frac{3}{5}x - 9 = 18$$

$$\frac{3}{5}x - 9 + 9 = 18 + 9$$

$$\frac{3}{5}x = 27$$

$$\frac{3}{5}x \cdot \frac{5}{3} = 27 \cdot \frac{5}{3}$$

$$x = 45$$

$$15 - \frac{w}{4} = 28$$

