

Additional Examples

Lesson 2-1

1 EXAMPLE

Solve $b - 5 = 7$.

$$b - 5 + 5 = 7 + 5 \quad \text{Add 5 to each side to get the variable alone on the left side of the equal sign.}$$

$$b = 12 \quad \text{Simplify.}$$

Check: $b - 5 = 7$

$$12 - 5 \stackrel{?}{=} 7$$

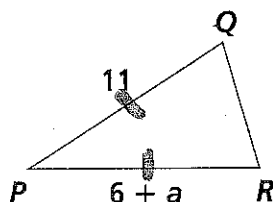
$$7 = 7 \checkmark$$

Check your solution in the original equation.

Substitute 12 for b .

2 EXAMPLE

Find the value of a .



$$PQ = PR$$

$$11 = 6 + a$$

$$11 - 6 = 6 + a - 6$$

$$5 = a$$

The measures of congruent sides are equal.

Subtract 6 from each side.

Simplify.

The value of a is 5.

Check: $11 = 6 + a$

$$11 \stackrel{?}{=} 6 + 5$$

$$11 = 11 \checkmark$$

Check your solution in the original equation.

Substitute 5 for a .

$$\begin{array}{r} b - 5 = 7 \\ + 5 \quad + 5 \\ \hline \end{array}$$

$$b = 12$$

$$\begin{array}{r} 11 = 6 + a \\ - 6 \quad - a \\ \hline 5 = a \end{array}$$

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3 EXAMPLE

Together, you and your puppy weigh 128 lb. If you alone weigh 115 lb, how much does your puppy weigh?

Relate: your weight plus puppy's weight equals combined weight

Define: Let p = the puppy's weight.

Write: $115 + p = 128$

$$\cancel{115} + p - \cancel{115} = 128 - 115 \quad \text{Subtract 115 from each side.}$$

$$p = 13 \quad \text{Simplify.}$$

The puppy weighs 13 lb.

Check: Is the solution reasonable? The puppy weighs about 15 lb. The puppy's weight plus your weight is about 130 lb, which is close to 128 lb. The answer is reasonable.

4 EXAMPLE

Solve $-\frac{t}{6} = -9.3$.

$$\cancel{-6} \left(\cancel{-\frac{t}{6}} \right) = -6(-9.3) \quad \text{Multiply by } -6 \text{ on each side to get the variable alone on the left side of the equal sign.}$$

$$t = 55.8 \quad \text{Simplify.}$$

5 EXAMPLE

Solve $\frac{2}{5}y = -10$.

$$\cancel{\frac{5}{2}} \left(\frac{2}{\cancel{5}} y \right) = \frac{5}{2}(-10) \quad \text{Multiply each side by } \frac{5}{2}, \text{ the reciprocal of } \frac{2}{5}.$$

$$y = -25 \quad \text{Simplify.}$$

Check: $\frac{2}{5}y = -10$

$$\frac{2}{5}(-25) \stackrel{?}{=} -10 \quad \text{Substitute } -25 \text{ for } y.$$

$$-10 = -10 \quad \checkmark$$

6 EXAMPLE

Solve $-6m = 42$.

$$\cancel{-6} m = \frac{42}{\cancel{-6}} \quad \text{Divide each side by } -6.$$

$$m = -7 \quad \text{Simplify.}$$