Lesson 1.3.9: Rearranging Formulas

Targets:

1. I can rearrange equations and formulas to solve for a specific variable.

Warm Up

Solve each equation for x. For part c, you are trying to get x by itself following the same rules as in parts a and b.

a. $2x - 6 = 10$ b. $-3x - 3 = -12$ c. $ax - b = c$

Practice 1

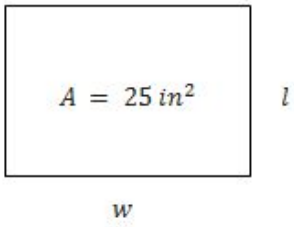
Solve the equation for a: $ax - b = c$

Practice 2

The area A of a rectangle is $25\ in^2$. The formula for area is $A = lw$.

a. If the width w is 10 inches, what is the length l?

b. If the width w is 15 inches, what is the length l?



c. Rearrange the area formula to solve for l. Use the same pattern you used in parts a and b.

Practice 3

a. The perimeter formula for a rectangle is $p = 2(l + w)$ where p represents the perimeter, l represents the length, and w represents the width.
   i. Calculate l when $p = 70$ *and* $w = 15$.

   ii. Now rearrange the formula for perimeter to solve for l.

b. The area formula for a triangle is $A = \frac{1}{2}bh$, where A represents the area, b represents the length of the base, and h represents the height.
   i. Calculate b when $A = 100$ *and* $h = 20$.

   ii. Now rearrange the formula for the area of a triangle to solve for b.

Practice 4

Rearrange each formula to solve for the specified variable. Assume no variable is equal to 0.

a. $A = P(1 + rt)$

i. Solve for P.

ii. Solve for t.

b. $K = \frac{1}{2}mv^2$

i. Solve for m.

ii. Solve for v.

Lesson Summary

The properties and reasoning used to solve equations apply regardless of how many variables appear in an equation or formula. Rearranging formulas to solve for a specific variable can be useful when solving applied problems.

Exit Ticket

First solve the related equation, then use the same process to solve the equation with more than one variable.

Related Equation	Equation Containing More Than One Variable
Solve for x : $3x + 4 = 6 - 5x$	*Solve for* x : $ax + b = d - cx$
Solve for x : $\frac{2x}{5} + \frac{x}{7} = 3$	*Solve for* x : $\frac{ax}{b} + \frac{cx}{d} = e$