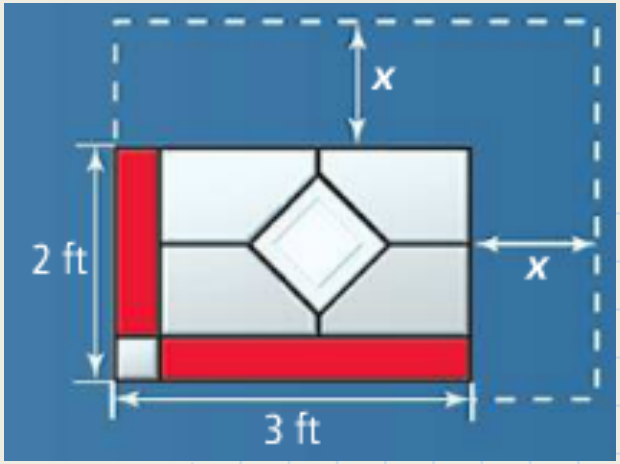
Algebra 1

Chapter 9
Section 9-4

Area and Factoring

You are finishing a stained glass hanging that your friend has started. You have enough supplies to add 6 ft^2 to the hanging. You are planning to add the same amount to the length and width. What will be the dimensions of the hanging when you are finished? How do you know?

$$(x + 2)(x + 3) = 12$$



Zero Product Property

Definition:

If two numbers multiply to zero *(meaning the product is zero),* then at least one of the two numbers must be zero.

Formula:

If $a \cdot b = 0$ then $a = 0$ and/or $b = 0$

Solve Using the Zero Property of Multiplication

$(x - 2)(x + 7) = 0$

$x - 2 = 0 \qquad x + 7 = 0$

$x = 2, -7$

$(2x - 5)(9 - x) = 0$

$2x - 5 = 0 \qquad 9 - x = 0$

$x = 2.5, = 9$

$(x - 1)(x + 2) = 0$

$x - 1 = 0 \qquad x + 2 = 0$

$x = 1, -2$

$x(9x - 1) = 0$

$x = 0 \qquad 9x - 1 = 0$

$x = 0, \frac{1}{9}$

Solve Using Factoring

(Separate answers using a comma)

$x^2 + 5x - 6 = 0$

$(x - 1)(x + 6) = 0$

$x - 1 = 0 \qquad x + 6 = 0$

$x = 1, -6$

$4x^2 - 5x = 6$

$4x^2 - 5x - 6 = 0$

$4x^2 - 8x + 3x - 6 = 0$

$4x(x - 2) + 3(x - 2) = 0$

$(x - 2)(4x + 3) = 0$

$x - 2 = 0 \qquad 4x + 3 = 0$

$x = 2 \text{ or } x = -\frac{3}{4}$