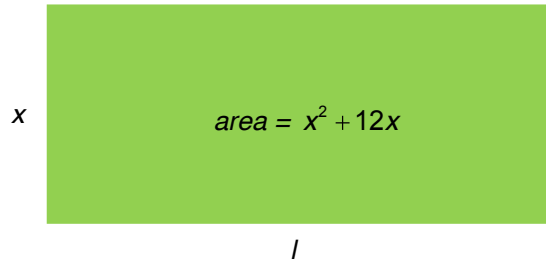


**Assignment: Factor Trinomials Using Guess and Check**

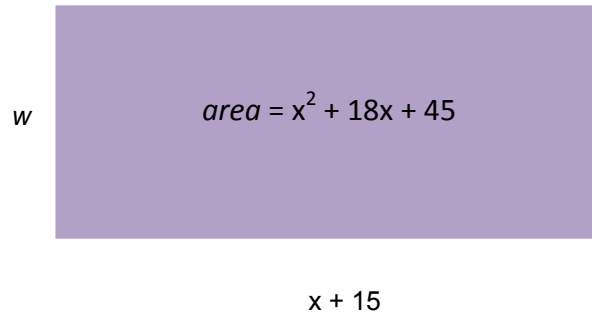
Follow the directions to find the missing side lengths in each problem. Be sure to show all work necessary to find your answer.

1. A gardener is planning to plant a rectangular vegetable garden during the spring. The rectangle below represents a plan for the garden with a width of  $x$  feet.



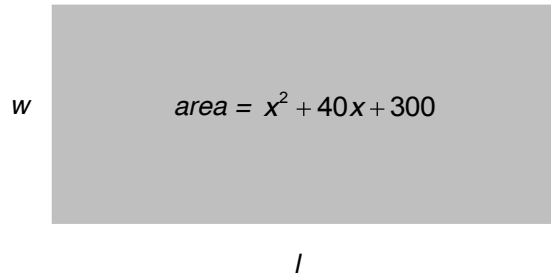
- a. Find the length ( $l$ ) of the rectangle if the area of the rectangle is  $x^2 + 12x$ . (Hint: Factor the trinomial  $x^2 + 12x + 0$  using the guess and check method.)
  
  
  
  
  
  
  
  
  
  
- b. Find the dimensions (length  $\times$  width) and the area of the garden if  $x = 10$  feet. (Hint: Substitute 10 for  $x$  in the expressions for length, width, and area.)

2. A city manager wants to add a playground in a new city park. The rectangle below represents the plan for the dimensions of the rectangular playground.



- a. Find the width ( $w$ ) of the rectangle if the area of the rectangle is  $x^2 + 18x + 45$ .
- b. Find the dimensions (length  $\times$  width) and the area of the playground if  $x = 8$  yards.

3. A construction manager needs to hire workers and order materials for building the foundation of a house. The rectangle below represents the house's foundation.



- a. Find the length ( $l$ ) and width ( $w$ ) of the rectangle if the area of the rectangle is  $x^2 + 40x + 300$ .
- b. Find the dimensions (length  $\times$  width) and the area of the foundation if  $x = 20$  feet.
4. Think of another real-world situation involving a rectangle.
- a. Describe what the rectangle represents and find the dimensions of the rectangle in terms of  $x$ , assuming the area is represented by the polynomial  $x^2 + 8x - 9$ .
- b. Using a specific value for  $x$ , find the dimensions (length  $\times$  width) and area of the rectangle.