Lesson 4.1.6: Creating and Solving Quadratic Equations

Targets:

1. I understand how to create quadratic equations from a situation in order to solve for missing information.

Warm Up:

The length of a rectangle is 5 in. more than twice a number. The width is 4 in. less than the same number. The perimeter of the rectangle is 44 in. Sketch a diagram of this situation, and find the unknown number.

Practice 1

The length of a rectangle is 5 in. more than twice a number. The width is 4 in. less than the same number. If the area of the rectangle is $15\ in^2$, find the unknown number.

Practice 2

A picture has a height that is $\frac{4}{3}$ its width. It is to be enlarged so that the ratio of height to width remains the same, but the area is $192\ in^2$. What are the dimensions of the enlargement?

Practice 3

A garden measuring $12\ m$ by $16\ m$ is to have a pedestrian pathway that is w meters wide installed all the way around it, increasing the total area to $285\ m^2$. What is the width, w, of the pathway?

Practice 4

Find two consecutive odd integers whose product is 99. Make sure you show your work using an algebraic solution.

Exit Ticket

Solve the following problems.

1. The length of a rectangle is $2\ cm$ less than its width. If the area of the rectangle is $35\ cm^2$, find the width.

2. A student is painting an accent wall in his room where the length of the room is $3\ ft$. more than its width. The wall has an area of $130\ ft^2$. What are the length and the width, in feet?

3. Find two consecutive even integers whose product is 80. Make sure you show your work using an algebraic solution.