The Chicken Coop Dilemma - CONSOLIDATION

Complete the table of values for the chicken coop.

Length (m)	Width (m)	Area (m^2)	First Diff.
1	11	11	
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			

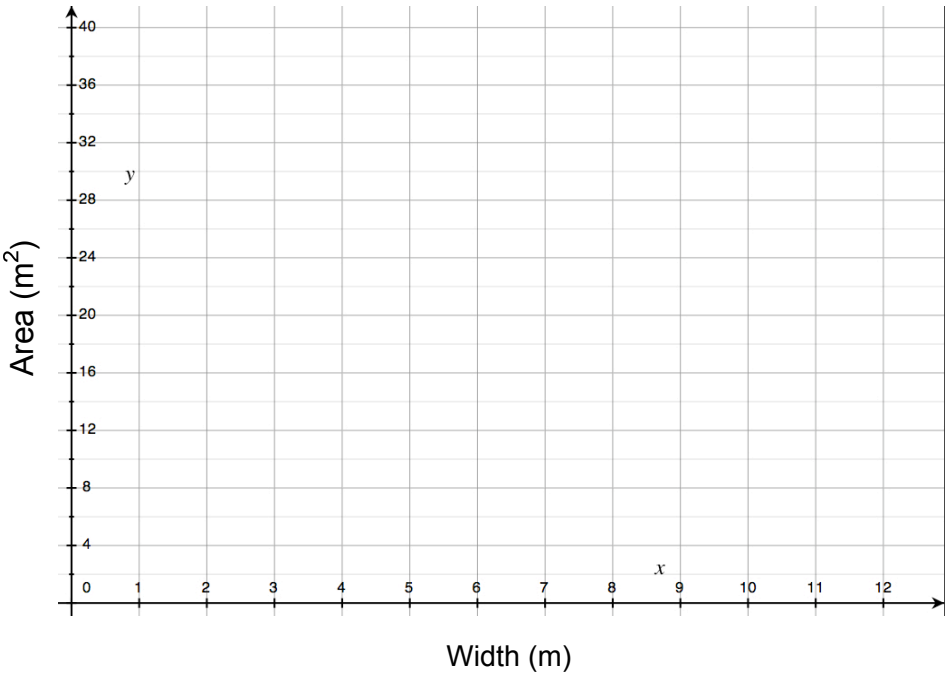
What happens to the area when the width increases?

Is the pattern linear OR non-linear?

Construct a scatter plot of area vs. width.

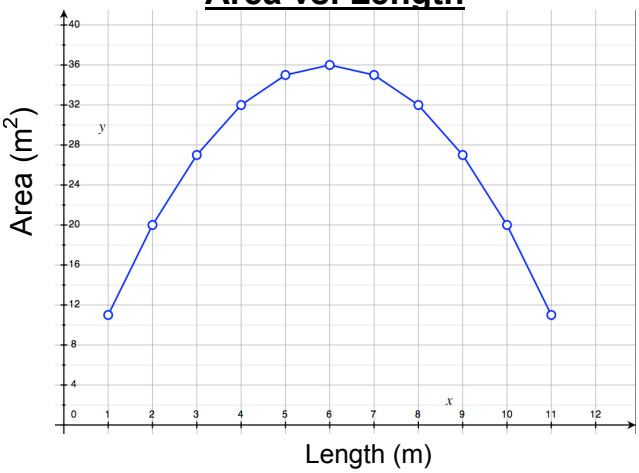
Look at the scatter plot. **Circle** the region where the area of the garden is the largest.

Area vs. Width

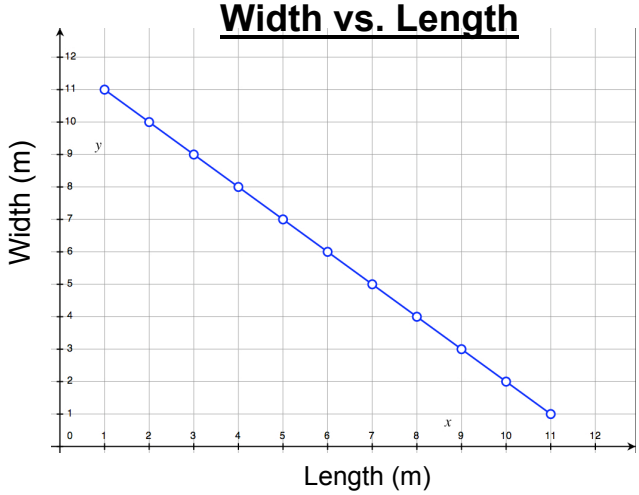


Below are two other graphs that compare the table of values. Notice how the Area vs. Length is the same as Area vs. Width above. Find where on the Width vs. Length produces the largest area.

Area vs. Length



Width vs. Length



So What?

What are the best dimensions for the chicken coop? Justify your choice. Include a sketch and the area of the garden that you are recommending.

Thinking Questions…

1. If you have two rectangles with the same perimeter:

   i) one with its length double the width

   ii) another with its length triple the width

   Which rectangle produces the **largest area**? Why?

2. If I told you how much fencing I have (perimeter), do you know the **area**? **Why**?

3. The area of two rectangles are very similar, their perimeters are very different. What might the **dimensions** be?

4. If a rectangle has a larger area than another, must the perimeter of the larger rectangle be bigger as well? **Disprove this statement** with a counter-example.

5. Nick has 100 ft^2 of sod grass and needs to make a fence around it. Find the **perimeter that minimizes** the fencing he needs to buy.

6. Which creates a larger area: a **square** with perimeter of 100 cm, or a **circle** with a circumference (perimeter) of 100 cm? Hint: $C = 2\pi r \ and \ A = \pi r^2$ Justify.