NAME   DATE   PERIOD

Lesson 4: Rabbit Run

Ready, Set, Go

Ready

Calculate the slope of the line between the given points.

1. $A(-3, 7)$; $B(-5, 17)$

2. $H(12, -37)$; $K(4, -3)$

3. $P(-11, -24)$ $Q(21, 40)$

4. $R(55, -75)$ $W(-15, -40)$

5. Consider the lines that would go through each of the pairs of points; which line would be the steepest?

Set

For problems 6–13 use the following situation.

Adam and his brother are responsible for feeding their horses. In the spring and summer the horses graze in an unfenced pasture. The brothers have erected a portable fence to corral the horses in a grazing area. Each day the horses eat all of the grass inside the fence. Then the boys move the fence to a new area where the grass is long and green. The brothers have always arranged the fence in a long rectangle with 10 feet by 70 feet for an area of 700 sq. ft. Adam has learned in his math class that a rectangle can have the same perimeter but different areas.

He is beginning to wonder if he can make his daily job easier by rearranging the fence so that the horses have a bigger grazing area. He begins by making a table of values. He lists areas of rectangles with a perimeter of 160 ft. He realizes that a rectangle that is oriented horizontally in the pasture will cover a different section of grass than one that is oriented vertically. So he is considering the two rectangles as different in his table.

Vertical

Horizontal
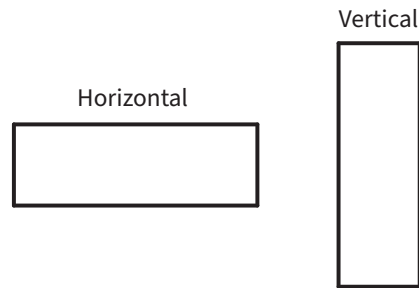
6. Fill in Adam's table with all of the arrangements for the fence. (The first one is done for you.)

| Length in ft	Width in ft	Perimeter (ft)	Area (ft^2)
10 ft	70 ft	160 ft	700 ft^2
20 ft		160 ft	
30 ft		160 ft	
40 ft		160 ft	
50 ft		160 ft	
60 ft		160 ft	
70 ft		160 ft	

7. Discuss Adam's findings. Explain how you would rearrange the fence so that Adam will be able to do less work.

8. Make a graph of Adam's investigation. Let length be the independent variable and area be the dependent variable. Label the scale so all points from the table show on the grid provided.
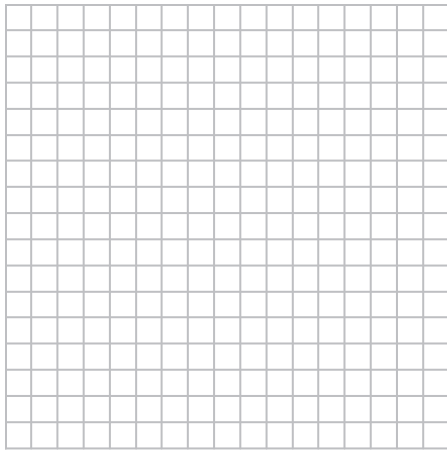
9. Describe the shape of your graph.

10. Write an equation for the area based on any given side length, x, of fence for the rectangle.

11. Write an equation to find the area for a rectangle with a side length of 25 ft. Write another equation to find the area for a rectangle with side length of 65 ft. Solve and find the areas that go with the side lengths.

12. Which other rectangles will have the same area as the rectangles with side lengths of 25 ft and 65 ft?

Mark these on the graph.

13. Explain what makes this function a quadratic.

Go

Determine which function will be increasing faster when x is very large.
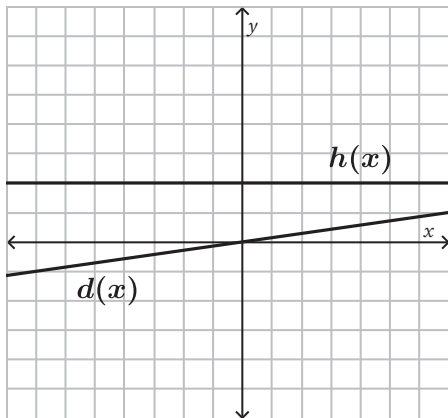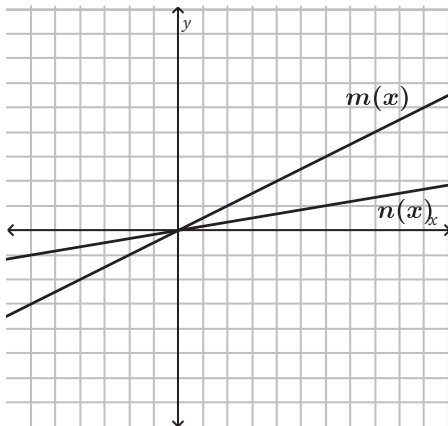
NAME								DATE								PERIOD

14.

15.

16.
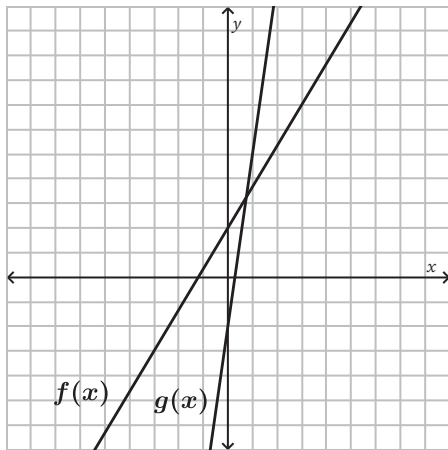
Unit 6, Lesson 4 – Ready, Set, Go							**4 of 6**

NAME   DATE   PERIOD

17.

18.

19.

20.
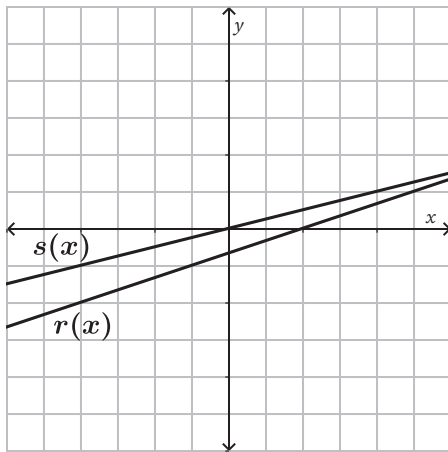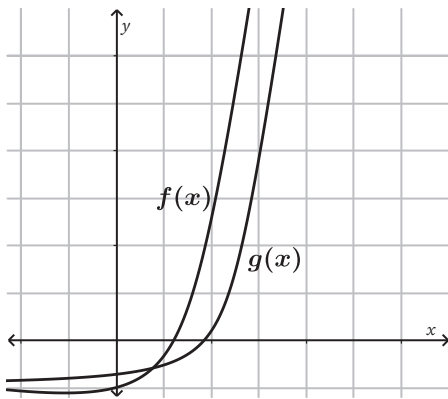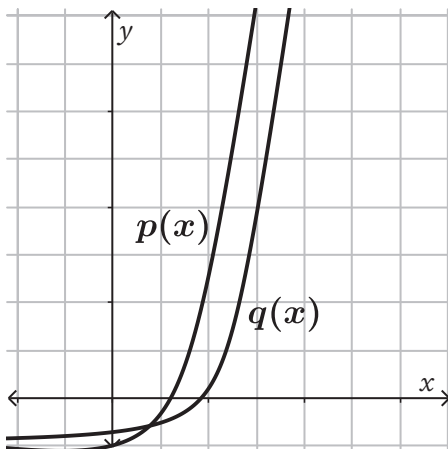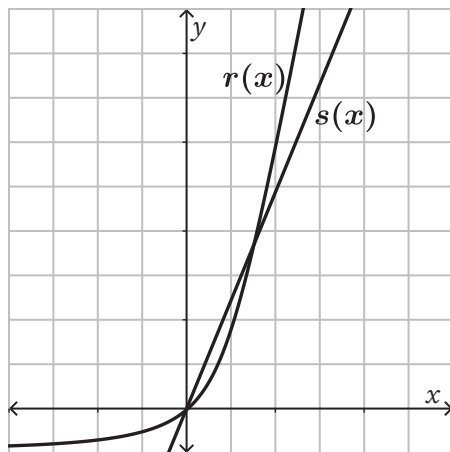
a. Examine the graph from 0 to 1. Which graph do you think is growing faster?

b. Now look at the graph from 2 to 3. Which graph is growing faster in this interval?