Name _____ Date _____ Class _____

LESSON 2-10

Algebra Lab Recording Sheet pp. 144–145

Explore Changes in Population

Try This

Activity 1

A team of biologist is studying a population of deer. There are 32 deer in the first year of the study. Due to a lack of predators, the biologists find that the herd grown by 50% every year.

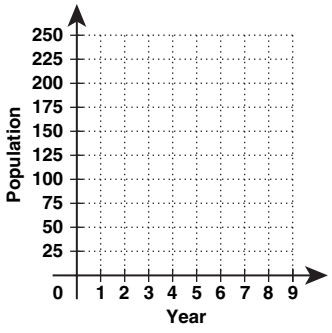
1. Complete the table. The first two rows have been completed for you.

Year	Percent Increase	Amount of Increase	Population
1			32
2	50%	$0.50 \cdot 32 = 16$	$32 + 16 = 48$
3	50%		
4	50%		
5	50%		
6	50%		

2. Describe the percent increase from year to year. _____

3. Describe the amount of increase from year to year. _____

4. Use the grid and plot the year and the population of deer on the graph as six ordered pairs (year, population). Connect the points with a smooth curve.



5. Describe the shape of your graph. _____

Try This

A researcher places 70 bacteria on a dish. This species increases by 100% every hour.

1. Complete the table below.

Hour	0	1	2	3	4	5	6	7	8	9
Amount of Increase		_ _	_ _ _	2_ _	5_ _	1_ _ _	2_ _0	4_ _ _	8_ _0	17_ _0
Bacteria	70	_ _ _	2_ _	5_ _	1_ _ _	2_ _ _	4_ _ _	8_ _ _	17_ _0	35_ _0

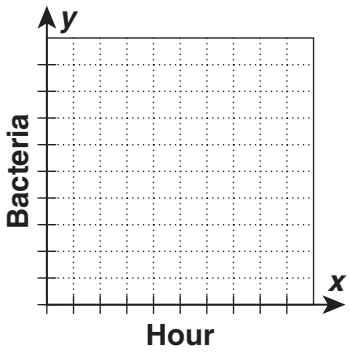
Name _____ Date _____ Class _____

LESSON 2-10

Algebra Lab Recording Sheet pp. 144–145

Explore Changes in Population continued

2. Graph points from the table as (hour, bacteria). Connect the points with a smooth curve.



3. Compare this graph with the graph of the deer population.

_____

4. Why does the amount of increase change when the percent of increase stays the same?

_____

Activity 2

A second team of biologist is studying a population of wolves. There are 3125 wolves in the first year. The biologists find that this population decreases by 40% every year.

1. **Make a Prediction** Based on your results in Activity 1, what do you think will happen to the amount of decrease each year?

_____

2. Copy and complete the table below. The first two rows have been completed for you.

Year	Percent Increase	Amount of Increase	Population
1			3125
2	40%	$0.40 \cdot 3125 = 1250$	$3125 - 1250 = 1875$
3	40%		
4	40%		
5	40%		
6	40%		

3. What happens to the amount of decrease in the wolf population from year to year? Was your prediction from Problem 1 correct?

_____

4. **Make a Prediction** Using the grid, and based on your results in Activity 1, what do you think the graph of ordered pairs (year, population) will look like?

_____

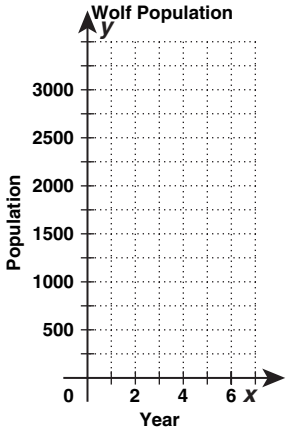
Name _____ Date _____ Class _____

LESSON 2-10

Algebra Lab Recording Sheet pp. 144–145

Explore Changes in Population continued

5. Plot the year and the population of wolves on the graph as six ordered pairs (year, population). Connect the points with a smooth curve



6. Describe the shape of your graph. Was your prediction from Problem 4 correct?

_____

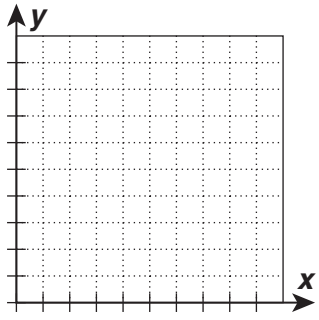
Try This

A half-life is the amount of time it takes half of an amount of radioactive substance to decay into another substance. Tritium is a radioactive form of hydrogen with a half-life of 12.3 years. In other words, after one half-life of 12.3 years, an amount of tritium will have decreased by 50%.

5. Suppose you start with 128 grams of tritium. Complete the table below.

Half-lives	0	1	2	3	4	5
Percent Decrease	0	50%	50%	50%	50%	50%
Amount of Decrease (g)						
Tritium Remaining (g)	128					

6. Make a graph that shows how much tritium is left after 0, 1, 2, 3, 4, and 5 half-lives.



7. Compare this graph with the graph of the wolf population.

_____

8. Describe the graph of a population that decreases by a fixed percent. Why does the graph have this shape?

_____

9. Describe the graph of a population that decreases by a fixed percent. Why does the graph have this shape?

_____