Name: _____ Date: _____ Period: _____ Score: _____

Growing, Growing, Growing Assignment # 4

1. In parts of the United States, wolves are being reintroduced to wilderness areas where they had become extinct. Suppose 20 wolves are released in northern Michigan, and the yearly growth factor for this population is expected to be 1.2.
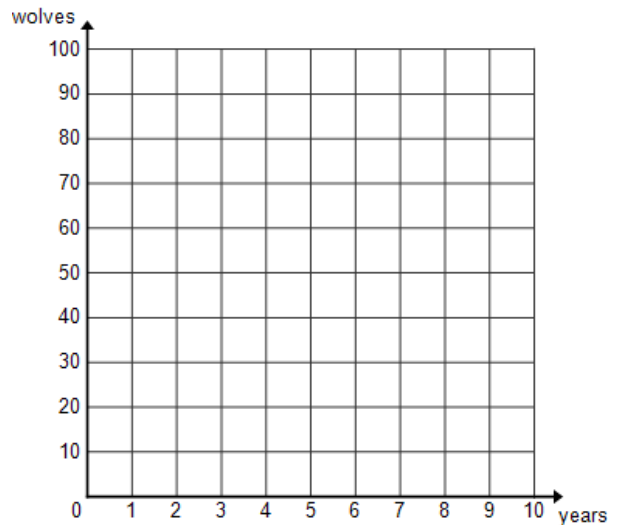
a. Make a table showing the projected number of wolves at the end of each of the first 10 years.

Year	0	1	2	3	4	5	6	7	8	9	10
Population											

b. Write an explicit equation that models the growth of the wolf population.

c. How long will it take for the new wolf population to exceed 100?

d. Graph the wolf population for the first 10 years:

2. Suppose there are 100 trout in a lake and the yearly growth factor for the population is 1.5. How long will it take for the number of trout to double?

3. Suppose there are 500,000 squirrels in a forest and the growth factor for the population is 1.6 per year. Write an equation you could use to find the squirrel population p in n years.

4. a. What is the growth factor in this equation? $Y = 153(2.9)^x$
b. What is the growth rate?

5. a. What is the growth factor in this equation? $Y = 290(1.53)^x$
b. What is the growth rate?

6a. Fill in the table for each equation.

Y = 50(2.2)ˣ

x	0	1	2	3	4	5
y						

Y = 350(1.7)ˣ

x	0	1	2	3	4	5
y						

b. What is the growth factor for each equation?

c. Predict whether the graphs of these equations will ever cross.

d. Estimate any points at which you think the graphs will cross.

7. A $5,000 violin increases in value by 20% each year.
a. What is the growth rate?   b. What is the growth factor?

8. A $300,000 house increases in value 5% each year.
a. Find the value after 1 year.

b. Find the value after 2 years.

c. Find the value after 3 years.

d. Find the value after 30 years.

9. An investment of $20,000 has a 6% gain each year.
a. Write an explicit equation to help you find the value after x years.

b. Use your explicit equation to find the value after 5 years.

10. If the growth rate in a situation is 250%, what would the growth factor be?