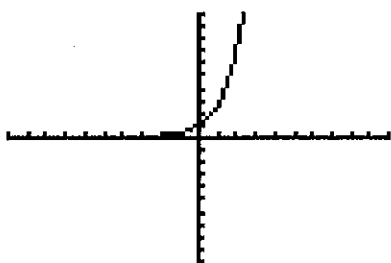


Exponential Growth and Decay
Review – All Sections

Name Key
Date _____

Identify each as growth or decay.

1.



- a) growth
- b) decay

2.

x	y
0	125
1	25
2	5
3	1
4	0.2

- a) growth
- b) decay

3. $y = (\frac{4}{7})^x$

Growth or decay? **decay**

Factor: $\frac{4}{7}$

Rate: $\frac{3}{7}$

Initial Value: 1

4. $y = .75 \cdot (2.4)^x$

Growth or decay? **growth**

Factor: **2.4**

Rate: **1.4**

Initial Value: **.75**

5. Given $y = 2(3)^x$, identify the following:

What is the initial value? **2**

What is the growth/decay factor? **3**

What is the growth/decay rate? **2**

Table #1:

x	y
-1	0.5
0	2
1	8
2	32
3	128

1. Growth/Decay Factor: 4

2. Growth/Decay Rate: 2

3. Initial Value: 2

4. Write the equation of the exponential function:

$$y = 2(4)^x$$

Table #2:

x	y
1	8
2	4
3	2
4	1
5	0.5
6	0.25

5. Growth/Decay Factor: .5

6. Growth/Decay Rate: .5

7. Initial Value: 16

8. Write the equation of the Exponential Function:

$$y = 16(.5)^x$$

7. An initial population of 5 squirrels increases by 9% each year for 10 years. Using x for years and y for the number of squirrels, write the equation that models this situation.

$$y = 5(1.09)^x$$

How many squirrels will there be in 10 years?

$$y = 5(1.09)^{10} = 11.8 \rightarrow \text{about 12 squirrels}$$

8. A car purchased for \$34,000 is expected to lose value, or depreciate, at a rate of 6% per year. Using x for years and y for the value of the car, write the equation that models this situation.

$$y = 34,000(.94)^x$$

After how many years is the car first worth less than \$21,500?

x	y
1	31,960
5	24,952.74
7	23,455.57

x	y
8	20,725.34

after
8 years