Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Pd: \_\_\_\_\_\_

**U10L4 – Review Exponential Growth and Decay**

**Lifework**

Identify each as growth or decay.



1.

 a) growth

 b) decay

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

2.

 a) growth

 b) decay

3. $y=(\frac{4}{7})^{x} 4. y=.75∙(2.4)^{x}$

 Growth or decay? Growth or decay?

 Factor: Factor:

 \*\* Rate: \*\* Rate:

 Initial Value: Initial Value:

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

What is the initial value?

What is the growth/decay factor?

What is the growth/decay rate?

Table #1:

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

 1. Growth/Decay Factor: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

 2. Initial Value: \_\_\_\_\_\_\_\_\_\_\_\_\_

 3. Write the equation of the exponential function:

Table #2:

|  |  |
| --- | --- |
| x | y |
| 2 | 4 |
| 3 | 2 |
| 4 | 1 |
| 5 | 0.5 |
| 6 | 0.25 |

4. Growth/Decay Factor: \_\_\_\_\_\_\_\_\_\_\_\_\_

5. Initial Value: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. Write the equation of the Exponential Function:

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.

 How many squirrels will there be in 10 years?

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.

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