**![MC900439415[1]]()Reflective Portfolio**

**Unit #9: Exponential function & Systems of Functions**

**Section #1: Vocabulary: Write a definition for each**

* Standard form of the Exponential function and its parameters.

Exponential Growth/Decay Standard Equation where a is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ b is\_\_\_\_\_\_\_\_\_\_\_\_\_

when b>1 its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, when $0<b<1$, its\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* Growth and decay factor for rates.

When b is represented by a growth rate: b=\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ , When b is represented by a decay rate

b=\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. r is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* Average rate of change and its formula:

**Section #2: Formulas/Equations/Rules (Show the process)**

* Sketch the graph of each:

|  |  |
| --- | --- |
| Exponential Growth | Exponential Decay |

* Simple interest vs compounded interest

Simple interest formula:

Compound Interest Formula

where A = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ P = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ r = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ t = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ n = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ compounded annually n = \_\_\_\_\_ , compounded quarterly n = \_\_\_\_\_\_\_, compounded monthly n = \_\_\_\_\_\_\_ compounded weekly n = \_\_\_\_\_ , compounded daily n = \_\_\_\_\_\_\_

* How would you determine if a table of values is best represented by a linear, exponential function?

**Section #3: Key methods and concepts**

1. $f\left(x\right)=30(1.03)^{x}$
2. Identify the parameters and what they present.
3. Identify the function as growth and decay. Justify your choice.
4. If the population of a town is decreasing by 4% per year and started with 12,500 residents.
5. Write an exponential function to represent the scenario.
6. Find the town population in 10 years.
7. Find the number of years it will take to have 9784 residents in the town graphically.
8. Anne invested $1000 in an account with a 1.3% annual interest rate. She made no deposits or withdrawals on the account for 2 years. If interest was compounded monthly, Find the balance in the account after the 2 years.

|  |  |
| --- | --- |
| **x** | **F(x)** |
| **0** | **36** |
| **1** | **18** |
| **2** | **9** |
| **3** | **4.5** |

1. a. Write an appropriate function that represents the table of values.
2. Calculate the Correlation coefficient.
3. a. Find the values of x for which $f(x)=g(x)$
4. When $x=-1$, Which value is greater $f(x) or g(x)$

