# TOPIC 8-1 Independent Practice & Application

1. For each function, identify the following properties or characteristics:

* Exponential growth, decay, or neither, and provide your reason.
* Domain and range
* Y-intercept
* End behavior

1. 
2. 
3. 
4. 
5. Determining Exponential Equations.
6. Jerald is investigating the typical depreciation rate for the used automobile he intends to purchase next month. He has collected the following data about an automobile purchased in 1999 for $12,500.00:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **# Years After**  **1999** | **0** | **1** | **3** | **5** |
| **Value ($)** | **12,5000.00** | **10,750.00** | **8,000.00** | **5,800.00** |

1. Using Jerald’s data, find the best-fit exponential equation for this depreciation, through both the substitution method and the calculator’s regression tool.

Substitution Method: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Regression Method: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Use the calculator’s regression equation to estimate the depreciated value of the automobile in 2010: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Sherie’s biology class is studying the ability of a certain microbe to dissipate oil spilled in seawater. To be effective, the population of microbes must grow exponentially. She has recorded the microbe population growth as follows:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **# Days After**  **March 1st** | **0** | **1** | **5** | **10** |
| **Population** | **57** | **95** | **700** | **8525** |

1. Using Sherie’s data, find the best-fit exponential equation for this growth, through both the substitution method and the calculator’s regression tool.

Substitution Method: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
Regression Method: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Use the calculator’s regression equation to estimate the microbe population on March 21st: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Solve the exponential equations:

7. 

8. 

9. 

10. 

# 