MCR3UI - Unit 5 Day 5

Applications of Exponential Functions

Using the TI-83 Emulator

Practice Questions: To be done in class

1. Constructing a Model for Exponential Growth
   The table give the average weekly earnings rounded to the nearest dollar, of Canadians over a 5-year period.

Year	*Earnings($)*
2002	*679*
2003	*688*
2004	*702*
2005	*725*
2006	*747*

   (a) Construct an exponential function to model the data.

   (b) Predict the average Canadian's weekly earnings in 2010.

   (c) Predict when the average Canadian might expect to earn $1000 per week.

2. Choosing a Model of Depreciation
   The value of a computer n years after it is purchased is given in the table.

Number of Years, n	*Value ($)*
1	*1200*
2	*960*
3	*768*
4	*614*
5	*492*
6	*393*

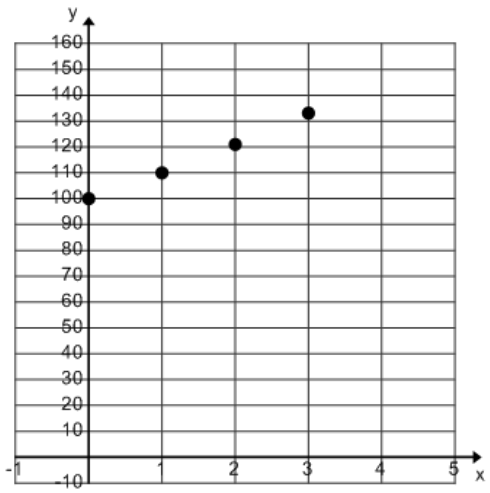
   (a) Enter the data in a table using a graphing calculator. Determine the first differences and describe the trend and what it means.

   (b) Make a scatter plot and construct each of the following types of models to represent this relationship:

   * linear
   * quadratic
   * exponential

   (c) Determine the most likely purchase price of the computer.

3. Annette has invested some money. The scatter plot shows the value of her investment after the first few years.



(a) Do the data appear to have an exponential trend? Explain your reasoning.

(b) Estimate the value of a and b to develop an exponential model for the data of the form $V(n) = a \times b^n$. Explain how you arrived at your estimated value.

(c) Use a graphing calculator to find an exponential model for these data.

(d) Use the exponential model you produced in part (c) to predict the value of Annette's investment after 10 years.

(e) Approximately how long will it take for Annette's investment to double in value?