Name: _____   Date: _____

Section 6.4 Model Data with Exponential Functions

1. Classify each of the following situations as linear, quadratic, or exponential. Explain your choices.
   a) Andre ran 10 m the first day, 50 m the second day, 90 m the third day, and 130 m the fourth day.
   b) Kady ran 15 m the first day, 30 m the second day, 60 m the third day, and 120 m the fourth day.
   c) Mei ran 64 m the first day, 81 m the second day, 100 m the third day, and 121 m the fourth day.

2. Graph each employee's earnings for 4 years on the same set of axes. Label each graph as linear, quadratic, or exponential.
   a) Employee A earns $10/h and receives a 40% raise each year.
   b) Employee B earns $15/h and receives a $5 raise each year.
   c) Employee C earns $25/h and receives a raise of $1 the first year, $2 the second year, $3 the third year, etc.

3. Sketch graphs to compare the expected shape of the cooling curve for a cup of coffee if it is placed in a room at room temperature with a curve that results if it is placed in a refrigerator.

4. The table shows the approximate average cost of building a computer chip manufacturing plant in millions of dollars from 1982 to 2002.

Year	Cost of Plant (Millions of Dollars)
1982	62.5
1986	125.0
1990	250.0
1994	500.0
1998	1000.0
2002	2000.0

   a) Sketch a graph with the year on the horizontal axis and the cost of building a plant on the vertical axis.
   b) Describe the graph.
   c) Use ratios to determine whether the relation between time and the cost of building a plant is exponential.

5. Audrey wrote a letter to three of her friends. The next day, her three friends each wrote letters to three of their friends.
   a) Make a table showing the number of friends who received letters for 7 days. Assume that no friend received a letter twice.
   b) Is this an exponential relation? Explain why or why not.
   c) Continue your table in part a) using a calculator to determine on which day the number of letter recipients becomes greater than the population of Canada. Assume that the population of Canada is 33 000 000.

6. Anne-Laure deposited $1000 into a savings account that pays interest. The table shows her savings for 6 years. Does the growth pattern appear to be exponential? Explain.

Year	Savings ($)
0	1000.00
1	1040.40
2	1082.43
3	1126.16
4	1171.66
5	1218.99
6	1268.24