Name	Date	Period				
Unit 4 5 Test Review						

1. For each of the following, determine if it is *strong/weak/no correlation* and *positive/negative*. Then estimate a correlation coefficient (r) using the following: r = -.976, r = 0.451, r = 1, r = -.762



2. For each of the following, determine if the statement indicates a correlation or a causation. Also determine if the relationship would be positive or negative

- a) The more hours Erica works at her hourly pay job, the more money she makes.
- b) The temperature outside and the amount of clothes you are wearing.
- c) The more baseball games being played, the more pool drownings that occur.
- d) The more cousins a person has, the better golfer they are.
- e) The more Pamela studies for her test, the better grade she will get.
- 3. Below is a table that represents the cost of Tony's cell phone bill and how many minutes he talked.
  - a. What regression model best describes this data?
  - b. Calculate the regression equation for this data.
  - c. Use your regression equation to determine how much it would cost if Tony talked for 65 minutes.
  - d. If he paid \$60, about how many minutes did Tony talk for?

minutes	cost			
0	\$35.00			
4	\$36.00			
16	\$39.00			
20	\$40.00			
28	\$42.00			
32	\$43.00			

4. In the movie contagion, the virus spread rapidly. The table below shows the spread of the virus over the first 5 days. Let's assume we are only looking at the population of a small city of 30,000 people.

- a) Which regression model should you use for the first 5 days shown in the table below?
- b) Write the formula of the regression model you used
- c) Use your regression model to determine the number of people infected by the  $8^{th}$  day.
- d) Is this a good model to use for the 8<sup>th</sup> day? Why or why not?
- e) What can you predict about the outbreak?
- f) Sketch a graph of what the *total* spread of the outbreak will look like.

## 5. Plot the information below and sketch the graph

Price (Thousands of \$)	160	180	200	220	240	260	280
Sales of New Homes This Year	126	103	82	75	82	40	20

- a. Sketch a graph
- b. Find the correlation coefficient for each of the different models

Linear\_\_\_\_\_ Quadratic \_\_\_\_\_ Exponential\_\_\_\_\_

- c. Which model would be the best? Why?
- d. Write the model of the equation you picked.
- e. If the house was priced at \$215 how many sales would expect to happen that year?
- f. If 50 houses were sold how much was the house priced at?

Day	Total infected
1	2
2	10
3	40
4	120
5	550

0							
9.	Years since 1890	0	20	40	60	80	100
	Population of California (in millions)	1.21	2.38	5.68	10.59	19.97	29.76

a. Sketch a graph

b. Find the correlation coefficient for each of the different models

Linear\_\_\_\_\_ Exponential\_\_\_\_\_

- c. Which model would be the best? Why?
- d. Write the model of the equation you picked.
- e. Using this model how many people would you predict in California in 2020?
- f. At what rate is the population increasing in California? (give answer as percent)

10. DesignCo is a local tshirt company. They charge a \$25 set-up fee and \$8.50 per shirt up to 25 shirts. There is a discount if you buy in bulk. After 25 shirts the price per shirt drops to \$5.50 per shirt.

a. How much would 16 shirts cost you?

b. How much would 50 shirts cost you?