Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_

AMDM – Unit V Quiz A

|  |  |  |
| --- | --- | --- |
|  |  |  |
|   Graph1 |  |  | **Student Number**12345678910 | **Hours Slept**8778657497 | **Test Score**83867488766390608981 |

 1) A history teacher asked her students how many hours of sleep they had the night before a test. The data above shows the number of hours the student slept and their score on the exam. The graph is a scatter plot from the given data.

1. Does this graph exhibit a linear or non-linear pattern? Weak or Strong? Explain.
2. Is the graph representing a positive or negative relationship? Justify your response.
3. Would this information affect your behavior the night before a test? Explain.
4. Does this imply a cause and effect relationship? Explain.

A square table seats 4 people. Two square tables pushed together seat 6 people. Three tables pushed together seat 8 people.

1. Using the information above, complete the following table.

|  |  |
| --- | --- |
| # of tables | # of people |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

1. Write a function rule for this data. Be sure to include any domain restrictions that are necessary.
2. How many people can be seated at 20 tables?
3. How many tables are needed for 32 people?

Adam put larger wheels on his skateboard. He noticed it would coast farther and decided to test this relationship. He collected some skateboards, attached wheels of various sizes and rolled them to see how far they would roll on their own. His data is in the table below.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Wheel diameter (in.) | 1 | 2 | 3.5 | 5 | 5.5 | 7 | 8.5 | 9.5 | 10 |
| Rolling Distance (in.) | 17 | 23 | 32 | 30 | 36 | 52 | 57 | 55 | 70 |

1. Enter the data into your graphing calculator. Make a sketch of the scatterplot and be sure to properly **scale** and **label** your axes.
2. Does there appear to be a linear relationship between the variables? Find the correlation coefficient and justify your answer.
3. Use your calculator to find a function model for this data. Write it here. Define x and y in context of this problem.
4. Determine the size of the wheels on a skateboard that rolls 50.5 in.
5. On April 23, 2009 (Day 0 or the initial day), the CDC (Center for Disease Control) confirmed 6 cases of swine flu in the U.S. On April 24, the CDC confirmed 7 cases. Input the ordered pair data in the table below into your L1 and L2.

|  |  |  |
| --- | --- | --- |
| Date (d) | Number of cases (c) | Ordered pair |
| 4/23 | 6 | (0, 6) |
| 4/24 | 7 | (1, 7) |
| 4/25 | 11 | (2, 11) |
| 4/26 | 20 | (3, 20) |
| 4/27 | 40 | (4, 40) |
| 4/28 | 64 | (5, 64) |
| 4/29 | 91 | (6, 91) |
| 4/30 |  | (7, ) |

a) Assuming the exponential pattern continues: Use the exponential regression function in your calculator ( ExpReg) to determine the regression equation. Write it here. Use the data for day 0 through 6 to calculate the regression equation.

b) Using this equation predict the number of cases on the 7th day (April 30)

c) Assuming the exponential pattern still continues, predict the number of cases on May 23 (remember April has only 30 days).

d) Will the exponential pattern continue forever? Explain why or why not.