**Regression Practice**

1. Flanders’s Sweet Snacks sells chocolate covered insects. The table below shows the amount of insects that Flanders’s has on hand over a period of time.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Day | 2 | 3 | 6 | 8 | 12 |
| Amount (ounces) | 382 | 341 | 200 | 132 | 75 |

1. If the number of ounces of insects, ***(A)***, is a function of the days, ***(t)***, circle the linear regression equation that represents the data above.

 

 

1. Using the model you selected in **part a**, find the horizontal intercept **algebraically**. Then write a sentence interpreting it in the context of the problem. **Show your work.**
2. Evaluate . Interpret this in the context of the problem.
3. Solve . Interpret this in the context of the problem.

2. Leslie decided to sell handmade greeting cards and started a marketing campaign to sell them. She started with 320 cards and kept track of how many cards she had left every week.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Week | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Number of Cards | 320 | 291 | 270 | 248 | 220 | 185 | 155 |

1. Circle the linear **regression** function that best represents this data. ***C***, the number of cards left, is a function of ***w***, the number of weeks since she started selling greeting cards.

 

 

1. Find the horizontal intercept of the linear regression function you chose in **part a** and interpret it in the context of the problem. **Show your work.**

c. Circle the exponential **regression** function that best represents this data. ***C***, the number of cards left, is a function of ***w***, the number of weeks since she started selling greeting cards.

 

 

d. Find the vertical intercept of the exponential regression function you chose in **part c** and interpret it in the context of the problem.

3. Hanannigans loves to drink hot tea. One evening as she sipped her tea she pondered the temperature of her tea. She wondered if the temperature of her hot tea as it cooled was a function of time. She made a fresh cup and took some data readings.

|  |  |
| --- | --- |
| Time in minutes after tea is made | Temperature of tea in degrees Fahrenheit |
| 1 | 183 |
| 4 | 169 |
| 10 | 153 |
| 19 | 137 |
| 31 | 120 |
| 40 | 113 |
| 44 | 109 |

1. Circle the exponential regression function below for the temperature of the tea in degrees Fahrenheit, ***F***, as a function of the time in minutes since the tea was made, ***t***.

 

 

1. Using the function you chose in **part a**, evaluate  and interpret the result in the context of the problem.  **Show your work.**
2. Using the function you chose in **part a**, solve and interpret this result in the context of the problem. **Show your work.**
3. Using the function you chose in **part a**, identify and interpret the rate.

4. Gas prices are continually changing. The price per gallon for eight different years has been recorded in the table below.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Year (t) | 1995 | 1996 | 1998 | 1999 | 2001 | 2002 | 2004 | 2005 |
| Price per gallon  (in dollars) (p) | 1.09 | 1.20 | 1.18 | 1.25 | 1.55 | 2.05 | 2.25 | 2.65 |

1. Define the variables.
2. Write the linear regression equation that represents the data above. Round to 3 decimal places.
3. Write the exponential regression equation that represents the data above. Round to 3 decimal places.
4. Which of the equations (linear or exponential) better represents this data? Justify your answer.
5. Using the better equation that you chose in **part d**, solve . **Show your work.**
6. Interpret **part e** in the context of the problem.