

Name \_\_\_\_\_

Date \_\_\_\_\_

**Two-Variable Statistics**  
**Function Models**  
**Independent Practice**

1. Below is a table of values for number of pictures added each year to the Tampa Tribune's database since 2000.

Year (2000-2014)	Number of Pictures in Database	Year (2000-2014)	Number of Pictures in Database
2000	350	2008	309
2001	419	2009	465
2002	417	2010	410
2003	376	2011	499
2004	431	2012	489
2005	404	2013	516
2006	410	2014	471
2007	373		

Part A: Which of the following is closest to the regression line equation?

- A  $f(x) = 366x + 8$   
B  $f(x) = 13.4361(1.0079)^x$   
C  $f(x) = 8x + 366$   
D None of the above is close enough



Part B: In approximately what year is the Tampa Tribune expecting to add 700 new pictures per year to their database?

Part C: James says that at some point the number of new pictures being added will begin to decrease. Does the data for the past 15 years support his hypothesis? Explain.

2. When a movie is released to theaters, production companies monitor revenues from individual cities for that movie on its release date. Below is a table that shows 10 different movie revenues from opening night in both Tallahassee and Gainesville. Revenue is reported in millions of dollars.

<b>Tallahassee</b>	1.6	5.2	10.1	15.9	18.4	21.3	25.1	27.1	30.3	35.6
<b>Gainesville</b>	35.7	34.0	32.6	29.2	34.0	21.7	18.3	18.5	11.5	10.7

Part A: Which is the more appropriate function to model the data, where  $x$  represents the number of millions of dollars of revenue from Tallahassee theaters?

- A  $f(x) = -0.805x + 38.967$
- B  $f(x) = 0.805x + 38.967$
- C  $f(x) = -0.001x^2 - 0.543x + 37.389$
- D  $f(x) = 40.5(0.96)^x$

Part B: According to the model, if a movie brought in \$32.2 million in total sales in Tallahassee, what would the expected sales be for Gainesville?

Part C: Sammy Nole predicted that if a movie brings in only \$1.6 in sales in Gainesville that the movie would bring in \$35.7 million when shown in Tallahassee. Does the data support this hypothesis? Justify your answer.



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

**Two Variable Statistics**  
**Examining Correlation**  
**Independent Practice**

1. Select all of the following statements that are true.

- Correlation coefficients show the  $x$  and  $y$  intercepts of the best fit line.
- Correlation coefficients show the relationship of the  $x$  and  $y$  values.
- Correlation coefficients can be represented by the variable  $r$ .
- Correlation coefficients are negative when the relationship is weak and positive when they are strong.
- Correlation coefficients can be any value less than 1 or greater than  $-1$ .

2. In your own words, what does an  $r$  value of  $-1$  represent?

3. Circle the word that makes the statements correct.

Correlation **does** | **does not** imply causation.

Causation is when one event **does** | **does not** cause another to happen.

Two variables are **always** | **sometimes** | **never** correlated.

4. In the U.S., from 2004 – 2015, the correlation coefficient for the relationship between the size of a cell phone data plan,  $x$ , and the number of text messages sent,  $y$ , is  $r = +0.97$ . Describe the relationship between the data plan size and the number of text messages sent in the U.S.

