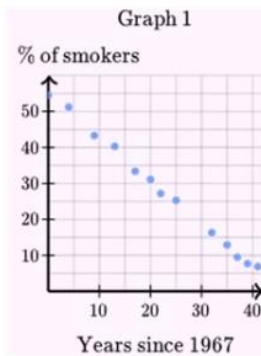
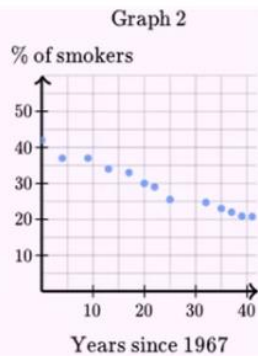


Scatter Plots, Lines of Best, and Residuals Practice Test

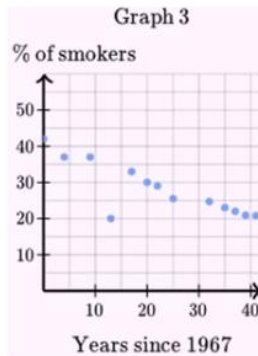
1. The percent of adults who smoke, recorded every few years since 1967, suggests a negative linear association with no outliers. On average, the percent drops by 0.5 point each year. Which of the following plots suits the above description?



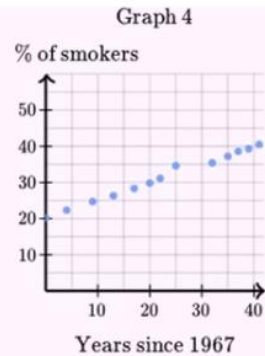
A. Graph 1



B. Graph 2



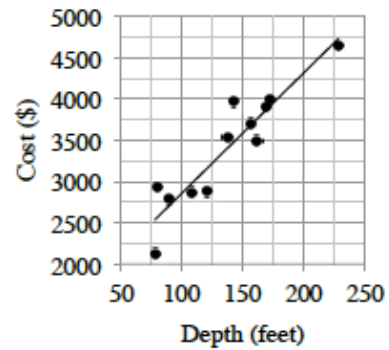
C. Graph 3



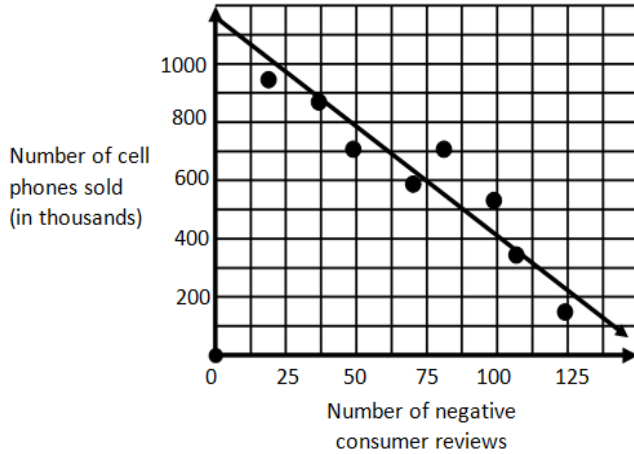
D. Graph 4

2. Which of the following best describes the correlation coefficient?

- A) .929
- B) .500
- C) -.729
- D) .234



3. The following data table and scatter plot represent the number of negative customer reviews for a given model of cell phone and the total number of that same cell phone model that were sold. Answer the following TRUE or FALSE questions.



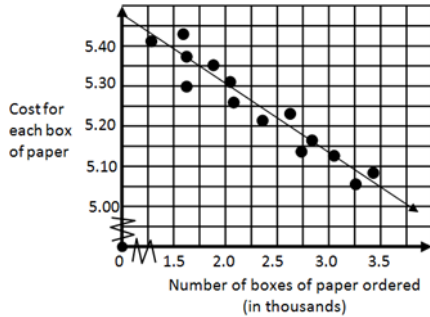
Number of consumer negative reviews	Number of cell phones sold (in thousands)
125	
98	505
50	701
106	355
21	925
69	592
80	700
37	890

A) Points (37, 890) and (98, 505) are on the line of best fit: _____

B) This scatter plot represents a negative correlation: _____

C) It's reasonable to predict that if there are 75 negative reviews the number of cell phones sold of that same model will be close to 600,000. _____

4. At the Happy Paper company the more boxes of paper you order the cheaper the price you have to pay for each box of paper. Below are the prices charged per box of paper to different companies ordering various quantities of paper.



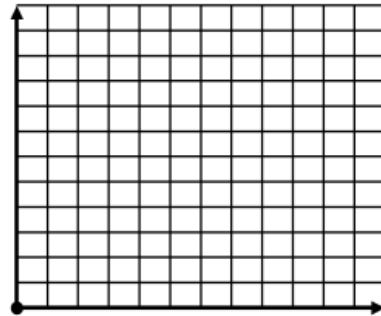
Using the line of best fit, if your company wants to only pay \$5.05 for each box of paper, how many boxes of paper should be ordered from Happy Paper company?

- a. 3.5 b. 350 c. 3500 d. 35,000

5. The table below shows the sales for a flower company for the years 2007 through 2012. Answer the given questions about this table on your answer sheet.

A) Graph the data on the scatter plot and draw a line of best fit for the data.

FLOWER SALES	
Year	Sales (in thousands)
2007	\$305
2008	\$330
2009	\$345
2010	\$370
2011	\$395
2012	\$420



B) Write an equation for the line of best fit for this data. Let x represent the years since 2007 and y represent the sales, in thousands of dollars.

C) According to your equation, in what year will the sales reach about \$500 (in thousands)? Use mathematics to explain how you determined your answer.

6. $Y = -3.1x + 92.6$

Over the last semester, Mr. Finch kept track of the number of student absences. Now that the semester is over, he wants to see if there is a linear relationship between the number of absences and a student's grade for the semester. The data he collected are given in the table.

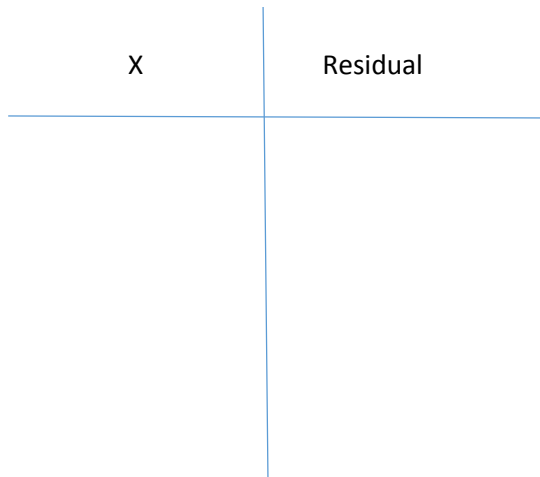
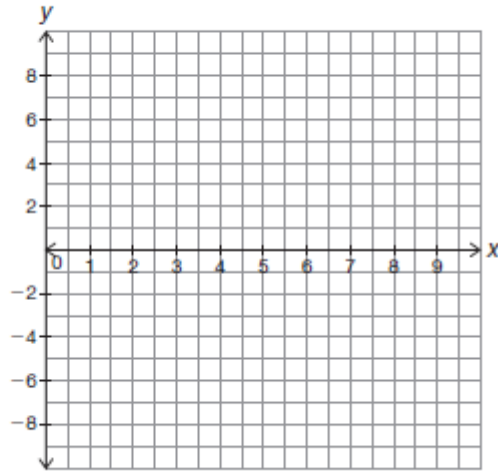
a. Fill in the table below

Student	Number of Absences	Algebra Grade (percent)	Predicted Value	Residual
James	0	95	92.6	2.4
Tiona	5	73		
Mikala	3	84		
Paul	1	92		
Danasia	2	92		
Erik	3	80		
Rachael	10	65		
Cheyenne	0	90		
Chen	6	70		
Javier	1	88		

b. Fill in the residual table

c. Create a residual plot

Construct and interpret a residual plot of the data.



d. Based on the residual plot, is a linear model appropriate? Explain your reasoning

7. If the point $A = (-4, 8)$ and is rotated 90° clockwise about the point $(0, 0)$, then $A' =$

a. $(4, 8)$

b. $(-4, -8)$

c. $(4, -8)$

d. $(8, 4)$

8. Which equation represents a line that is parallel to $y = -\frac{5}{4}x + 2$?

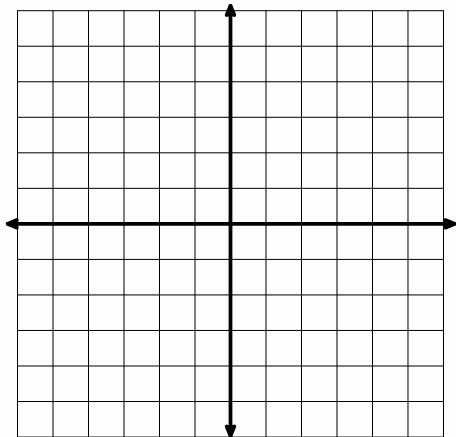
A $y = -\frac{5}{4}x + 1$

B $y = -\frac{4}{5}x + 2$

C $y = \frac{4}{5}x + 3$

D $y = \frac{5}{4}x + 4$

9. Graph $y = \frac{2}{3}x - 5$



Your paper brain and your Kindle brain aren't the same thing

By T.J. Raphael

Would you like paper or plasma? That's the question book lovers face now that e-reading has gone mainstream. As it turns out, our brains process digital reading very differently. Neuroscience, in fact, has revealed that humans use different parts of the brain when reading from a piece of paper or from a screen. So the more you read on screens, the more your mind shifts towards "non-linear" reading —skimming a screen.

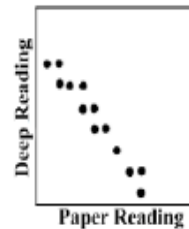
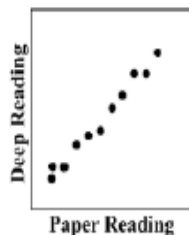
"They call it a 'bi-literate' brain." If you don't use the deep reading part of your brain, you lose the deep reading part of your brain." So what's deep reading? It's the concentrated kind we do when we want to "immerse ourselves in a novel or read a mortgage document." You don't typically use the kind of long-established linear reading on a computer. "Dense text that we really want to understand requires deep reading, and on the internet we don't do that."

Researchers like Wolf recommend setting aside some time each day to deep read on paper to keep the deep reading part of the brain alive and kicking. And now that children are seemingly growing up with a digital screen in each hand, Wolf says it's also important that teachers and parents make sure kids are taking some time away from scattered reading.

1. What justifications did the article use correlate deep reading with reading on paper or from a screen?

2. Does paper reading cause deep reading? Justify your answer.

3. Which graph most appropriately fits the situation describe in the article? (Choose one)



4. One possible equation of the Line of Best Fit for Paper Reading is $y = 2x + 1$. What does the slope mean in this situation?