



GRADE

8

KENTUCKY

K-PREP

Kentucky Performance Rating For Educational Progress



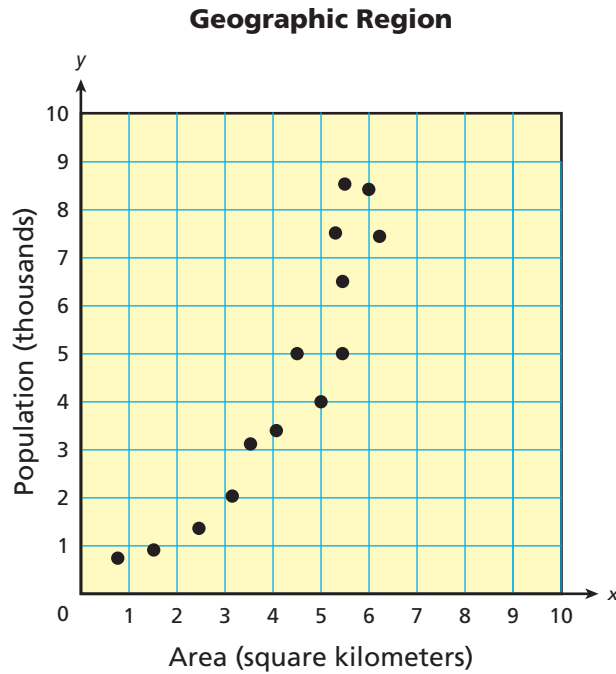
MATH SAMPLE ITEMS

Spring 2012



1

The scatter plot below represents the areas and populations of the towns in one geographic region.



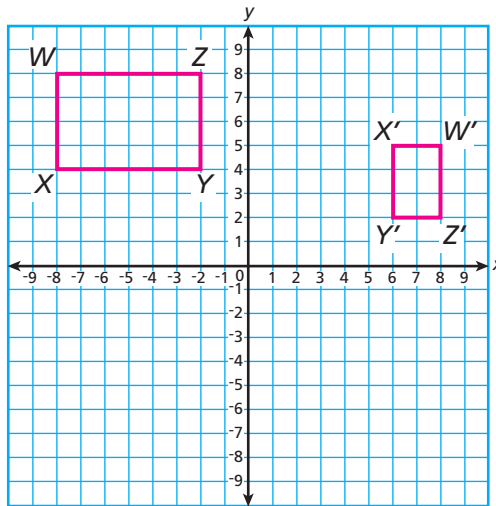
Which pair of words best describes the relationship between the variables in the scatter plot?

- A** Negative, linear
- B** Positive, linear
- C** Negative, nonlinear
- D** Positive, nonlinear



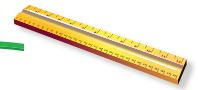
2

The coordinate plane shows two figures.



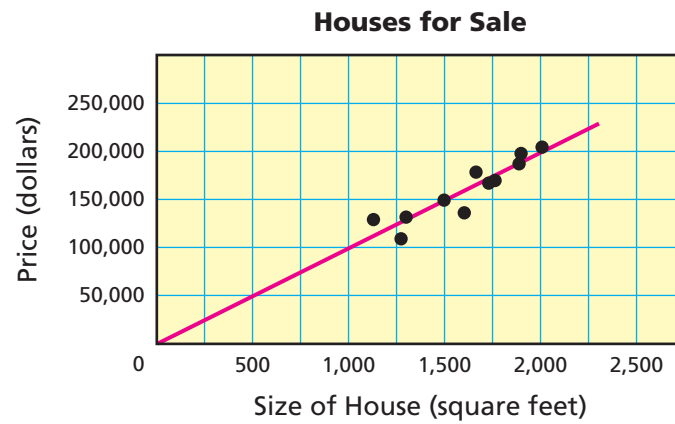
Which two transformations of Figure WXYZ show that it is similar to Figure W'X'Y'Z'?

- A** Figure WXYZ has a translation 9 units to the right and a 90° counterclockwise rotation about point Y.
- B** Figure WXYZ has a reflection over the y-axis and a dilation with a scale factor of $\frac{1}{3}$ with point X as the center of dilation.
- C** Figure WXYZ has a 90° clockwise rotation about the origin and a dilation with a scale factor of $\frac{1}{2}$ with point Z as the center of dilation.
- D** Figure WXYZ has a 270° counterclockwise rotation about the origin and a dilation with a scale factor of 2 with point W as the center of dilation.



3

The prices and sizes of several houses for sale in a neighborhood are shown in the scatter plot below.



Which equation represents the line of best fit?

- A** $y = 100x$
- B** $y = 100x + 50,000$
- C** $y = 1,000x$
- D** $y = 1,000x + 50,000$



4

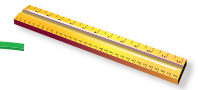
Which of the following represents the solution to a system of linear equations on graphs?

- A** The slopes of the lines
- B** The x -intercepts of the lines
- C** The y -intercepts of the lines
- D** The point at which the lines intersect

5

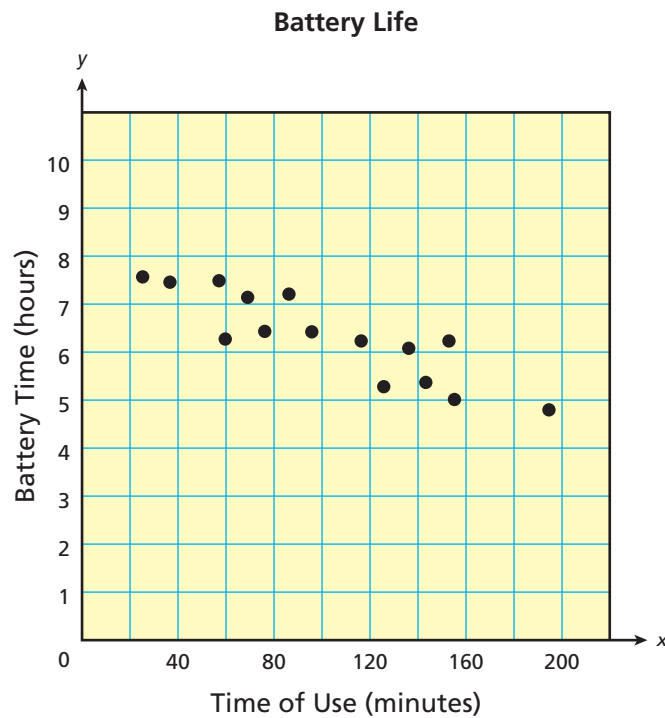
Sharla's batting average in softball is $0.58\bar{3}$. She wants to know the fraction equivalent to the decimal. Which fraction represents Sharla's batting average?

- A** $\frac{5}{8}$
- B** $\frac{5}{9}$
- C** $\frac{7}{11}$
- D** $\frac{7}{12}$



6

An electronics manufacturer tested the battery life of new cell phones. The scatter plot shows the time, in hours, the battery lasts (y) based on the number of minutes the phone is used (x) for each of fifteen cell phones.



Part A Which equation below would be better as the line of best fit? Explain your thinking.

$$y = \left(-\frac{1}{100}\right)x + 7$$

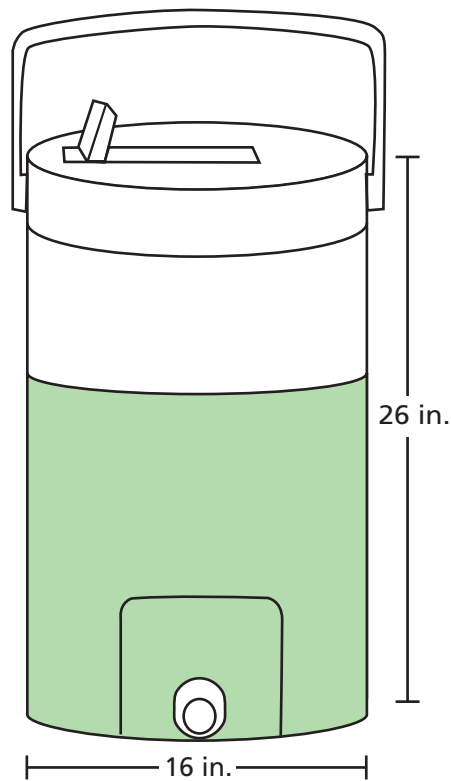
$$y = \left(-\frac{3}{200}\right)x + 8$$

Part B Explain what the slope represents in this situation.

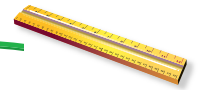


7

A cooler was filled to the fill line. The fill line is 1 inch from the top. The cooler is in the shape of a right circular cylinder with a height of 26 inches and a diameter of 16 inches, as shown below.



After 6 hours the cooler was $\frac{1}{4}$ full. What was the average amount of ice water used each hour? Show your work or explain your thinking.



Part A On your answer document, draw a coordinate plane that uses only Quadrant 1.

- Draw the x -axis.
- Label the x -axis with the numbers 0 through 10 (use increments of 1).
- Label the x -axis "Time (minutes)."
- Draw the y -axis.
- Label the y -axis with the numbers 0 through 1,000 (use increments of 100).
- Label the y -axis "Data Downloaded (megabytes)."

Part B On your coordinate plane, draw a graph using the following description: A computer is downloading a new program that has a total of 500 megabytes at a rate of 50 megabytes per minute. The computer already has 200 megabytes of data that was downloaded from a previous program.

Part C Write the equation of the graph.

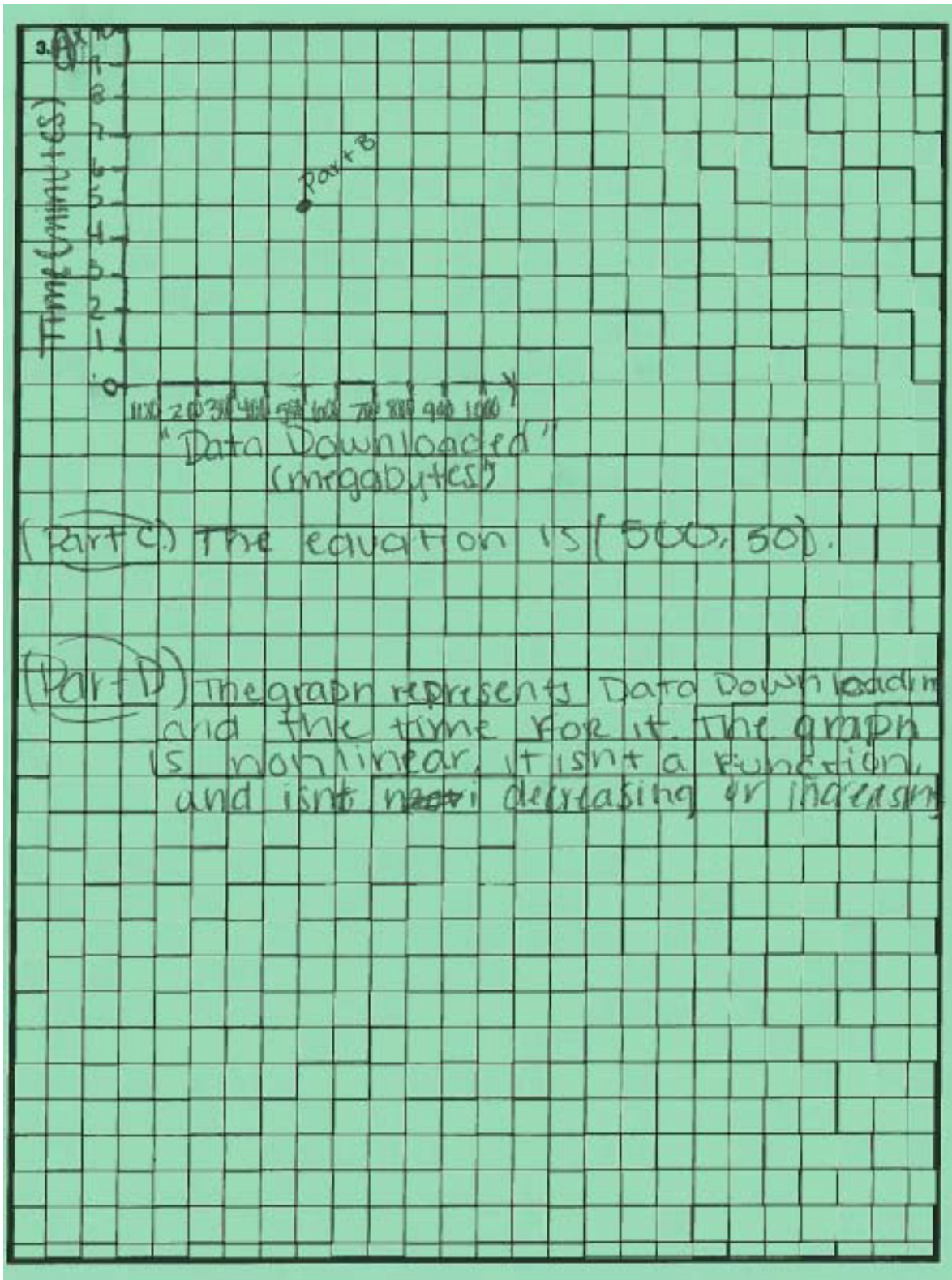
Part D Explain what your graph represents. Include in your response whether the graph is linear or nonlinear, a function or not a function, and increasing or decreasing.



Annotated Student Response

SAMPLE 0-POINT RESPONSE

NOTES



A 0.0

B 0.0

C 0.0

D 0.0