Question Bank

Math

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Two-Variable Data

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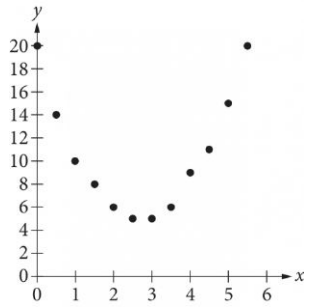
Question ID 82aaa0a1

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■□□

ID: 82aaa0a1



Of the following, which is the best model for the data in the scatterplot?

A. $y = 2x^2 - 11x - 20$

B. $y = 2x^2 - 11x + 20$

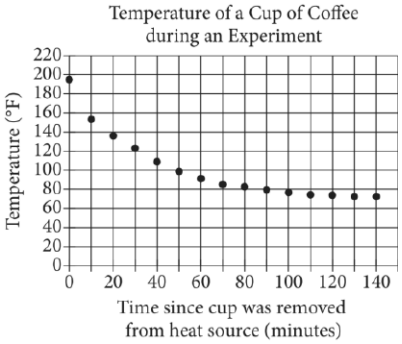
C. $y = 2x^2 - 5x - 3$

D. $y = 2x^2 - 5x + 3$

Question ID 83272c51

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■□□

ID: 83272c51



In an experiment, a heated cup of coffee is removed from a heat source, and the cup of coffee is then left in a room that is kept at a constant temperature. The graph above shows the temperature, in degrees Fahrenheit (°F), of the coffee immediately after being removed from the heat source and at 10-minute intervals thereafter. During which of the following 10-minute intervals does the temperature of the coffee decrease at the greatest average rate?

A. Between 0 and 10 minutes

B. Between 30 and 40 minutes

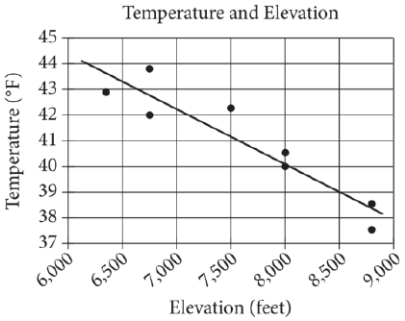
C. Between 50 and 60 minutes

D. Between 90 and 100 minutes

Question ID ac5b6558

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■□□

ID: ac5b6558



The scatterplot above shows the high temperature on a certain day and the elevation of 8 different locations in the Lake Tahoe Basin. A line of best fit for the data is also shown. What temperature is predicted by the line of best fit for a location in the Lake Tahoe Basin with an elevation of 8,500 feet?

A. 37°F

B. 39°F

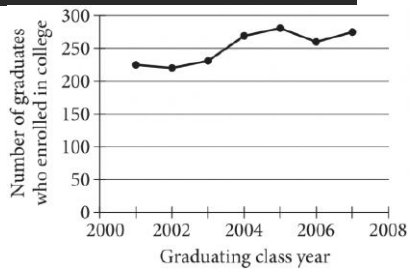
C. 41°F

D. 43°F

Question ID 74dee52b

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■□□

ID: 74dee52b



The line graph shows the number of graduates from the classes of 2001 through 2007 at a certain school who enrolled in college within 24 months of graduation. Of the following, which class had the fewest graduates who enrolled in college within 24 months of graduation?

A. 2002

B. 2004

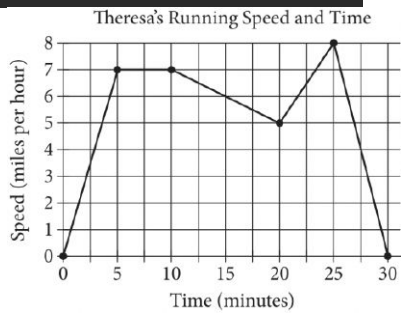
C. 2005

D. 2007

Question ID 9d88a3e3

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■□□

ID: 9d88a3e3



Theresa ran on a treadmill for thirty minutes, and her time and speed are shown on the graph above. According to the graph, which of the following statements is NOT true concerning Theresa's run?

A. Theresa ran at a constant speed for five minutes.

B. Theresa's speed was increasing for a longer period of time than it was decreasing.

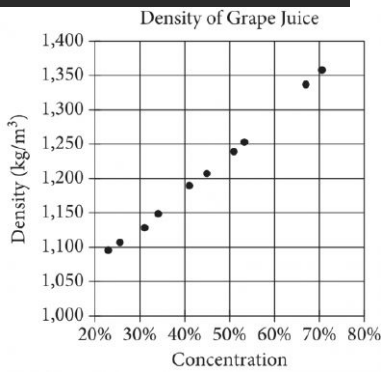
C. Theresa's speed decreased at a constant rate during the last five minutes.

D. Theresa's speed reached its maximum during the last ten minutes.

Question ID c9dd92b1

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■□□

ID: c9dd92b1



The densities of different concentrations of grape juice are shown in the scatterplot above. According to the trend shown by the data, which of the following is closest to the predicted density, in kilograms per cubic meter (kg/m^3), for grape juice with a concentration of 60%?

A. 1,200

B. 1,250

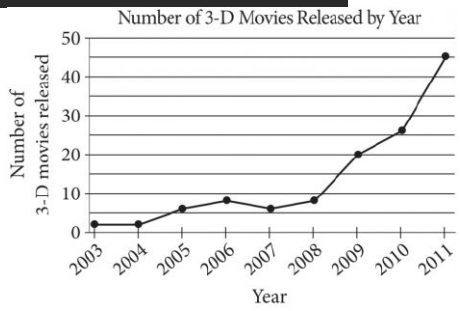
C. 1,300

D. 1,350

Question ID a6b2fcce

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■□□

ID: a6b2fcce



According to the line graph above, between which two consecutive years was there the greatest change in the number of 3-D movies released?

A. 2003–2004

B. 2008–2009

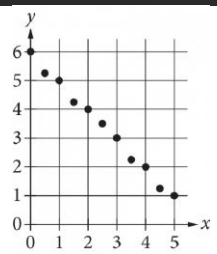
C. 2009–2010

D. 2010–2011

Question ID 9296553d

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■□□

ID: 9296553d



Which of the following could be an equation for a line of best fit for the data in the scatterplot?

A. $y = -x + 6$

B. $y = -x - 6$

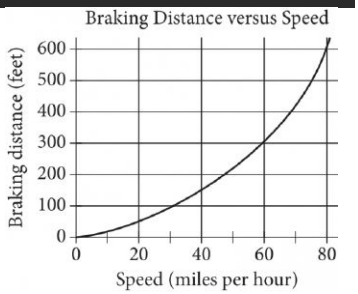
C. $y = 6x + 1$

D. $y = 6x - 1$

Question ID d6121490

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■□□

ID: d6121490



The graph above shows the relationship between the speed of a particular car, in miles per hour, and its corresponding braking distance, in feet. Approximately how many feet greater will the car's braking distance be when the car is traveling at 50 miles per hour than when the car is traveling at 30 miles per hour?

A. 75

B. 125

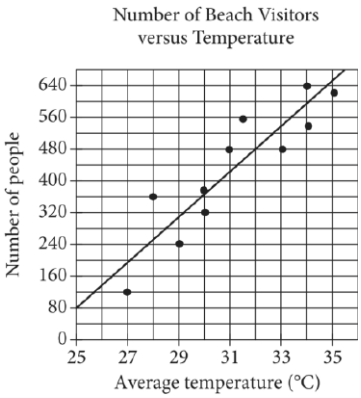
C. 175

D. 250

Question ID 8156d446

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■□□

ID: 8156d446



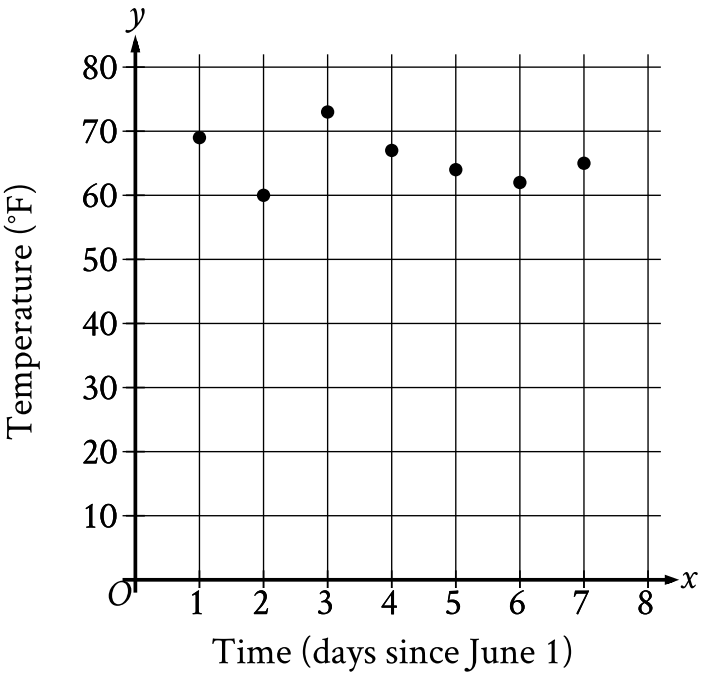
Each dot in the scatterplot above represents the temperature and the number of people who visited a beach in Lagos, Nigeria, on one of eleven different days. The line of best fit for the data is also shown. According to the line of best fit, what is the number of people, rounded to the nearest 10, predicted to visit this beach on a day with an average temperature of 32°C?

Question ID d112bc9d

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■□□

ID: d112bc9d

The scatterplot shows the temperature y, in $^\circ\mathrm{F}$, recorded by a meteorologist at various times x, in days since June 1.



During which of the following time periods did the greatest increase in recorded temperature take place?

A. From $x = 6$ to $x = 7$

B. From $x = 5$ to $x = 6$

C. From $x = 2$ to $x = 3$

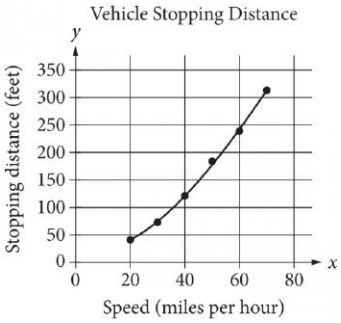
D. From $x = 1$ to $x = 2$

Question ID 5c24c861

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■□□

ID: 5c24c861

A study was done to determine a new car's stopping distance when it was traveling at different speeds. The study was done on a dry road with good surface conditions. The results are shown below, along with the graph of a quadratic function that models the data.



According to the model, which of the following is the best estimate for the stopping distance, in feet, if the vehicle was traveling 55 miles per hour?

A. 25

B. 30

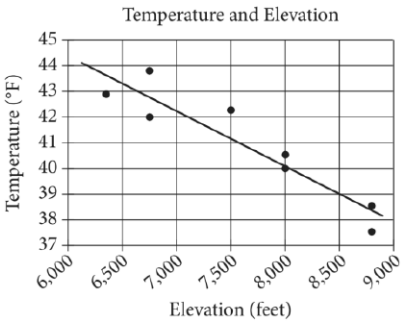
C. 210

D. 250

Question ID 661dfddd

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■□□

ID: 661dfddd



The scatterplot above shows the high temperature on a certain day and the elevation of 8 different locations in the Lake Tahoe Basin. A line of best fit for the data is also shown. Which of the following statements best describes the association between the elevation and the temperature of locations in the Lake Tahoe Basin?

A. As the elevation increases, the temperature tends to increase.

B. As the elevation increases, the temperature tends to decrease.

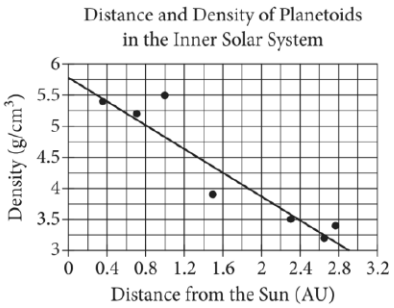
C. As the elevation decreases, the temperature tends to decrease.

D. There is no association between the elevation and the temperature.

Question ID cf0ae57a

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■□□

ID: cf0ae57a



The scatterplot above shows the densities of 7 planetoids, in grams per cubic centimeter, with respect to their average distances from the Sun in astronomical units (AU). The line of best fit is also shown. An astronomer has discovered a new planetoid about 1.2 AU from the Sun. According to the line of best fit, which of the following best approximates the density of the planetoid, in grams per cubic centimeter?

A. 3.6

B. 4.1

C. 4.6

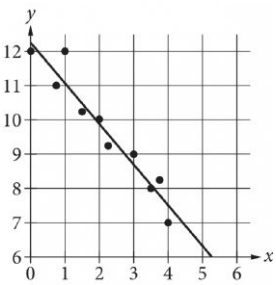
D. 5.5

Question ID 1adb39f0

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■■□

ID: 1adb39f0

The scatterplot shows the relationship between two variables, *x* and *y*. A line of best fit for the data is also shown. Which of the following is closest to the difference between the *y*-coordinate of the data point with $x = 1$ and the *y*-value predicted by the line of best fit at $x = 1$?



A. 1

B. 2

C. 5

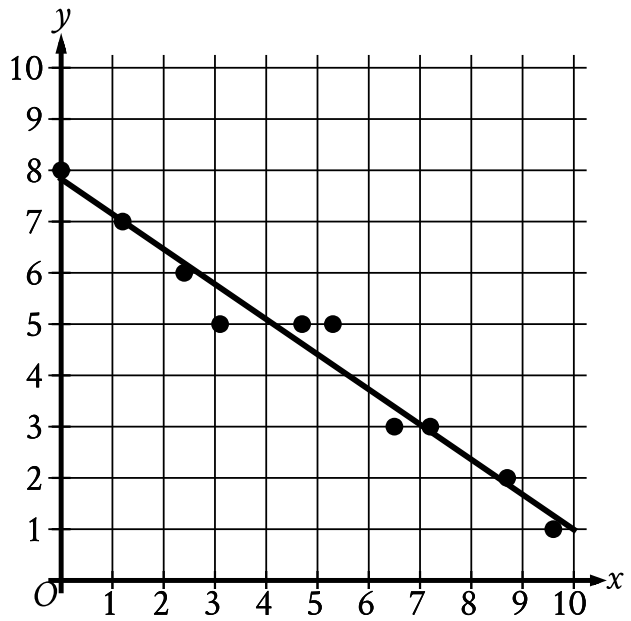
D. 12

Question ID 2e74e403

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■■□

ID: 2e74e403

In the given scatterplot, a line of best fit for the data is shown.



Which of the following is closest to the slope of this line of best fit?

A. 7

B. 0.7

C. -0.7

D. -7

Question ID 9a144a01

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■■□

ID: 9a144a01

Which of the following is true about the values of 2^x and $2x+2$ for $x>0$?

A. For all $x>0$, it is true that $2^x<2x+2$.

B. For all $x>0$, it is true that $2^x>2x+2$.

C. There is a constant c such that if $0<x<c$, then $2^x<2x+2$, but if $x>c$, then $2^x>2x+2$.

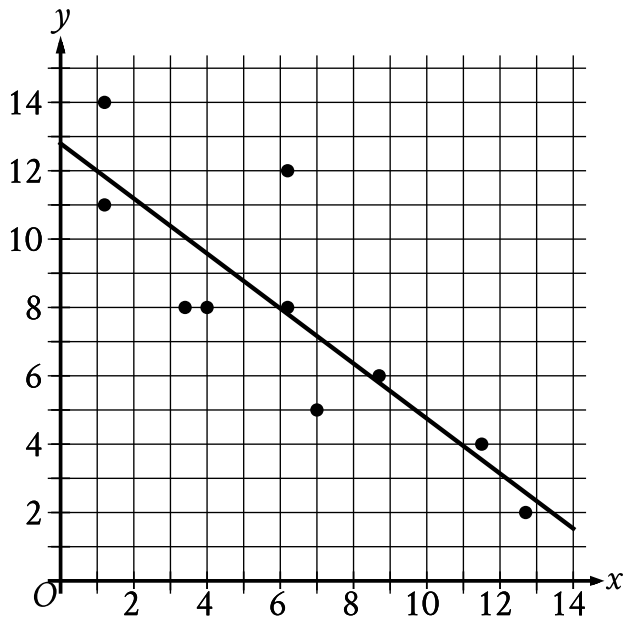
D. There is a constant c such that if $0<x<c$, then $2^x>2x+2$, but if $x>c$, then $2^x<2x+2$.

Question ID 03a16790

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■■□

ID: 03a16790

The scatterplot shows the relationship between two variables, x and y. A line of best fit is also shown.



Which of the following is closest to the slope of the line of best fit shown?

A. -2.4

B. -0.8

C. 0.8

D. 2.4

Question ID 7ac5d686

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■■□

ID: 7ac5d686

An inspector begins a day of work with a large sample of shirts that need to be checked for defects. The inspector works at a constant rate throughout the morning. What type of model is best to model the number of shirts remaining to be checked for defects at any given time throughout the morning?

A. A linear model with a positive slope

B. A linear model with a negative slope

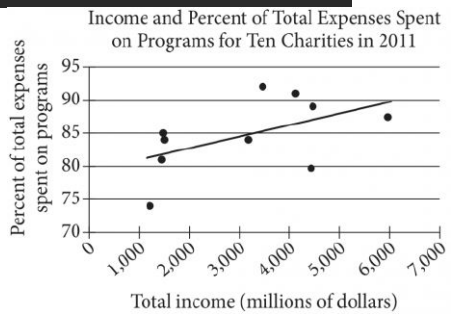
C. An exponential growth model

D. An exponential decay model

Question ID 7fd284ac

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■■□

ID: 7fd284ac



The scatterplot above shows data for ten charities along with the line of best fit. For the charity with the greatest percent of total expenses spent on programs, which of the following is closest to the difference of the actual percent and the percent predicted by the line of best fit?

A. 10%

B. 7%

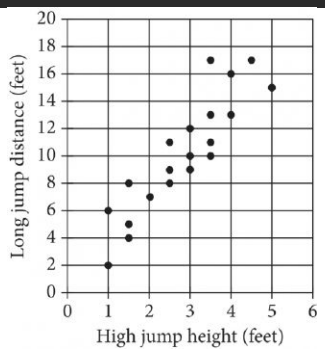
C. 4%

D. 1%

Question ID 3d985614

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■■□

ID: 3d985614



Each dot in the scatterplot above represents the height x, in feet, in the high jump, and the distance y, in feet, in the long jump, made by each student in a group of twenty students. The graph of which of the following equations is a line that most closely fits the data?

A. $y = 0.82x + 3.30$

B. $y = 0.82x - 0.82$

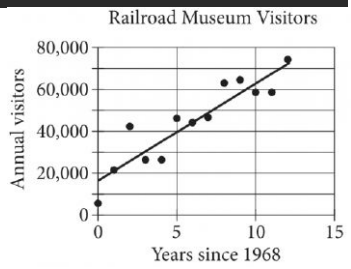
C. $y = 3.30x + 0.82$

D. $y = 3.30x - 3.30$

Question ID 3c5b19ef

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■■□

ID: 3c5b19ef



The scatterplot above shows the number of visitors to a railroad museum in Pennsylvania each year from 1968 to 1980, where t is the number of years since 1968 and n is the number of visitors. A line of best fit is also shown. Which of the following could be an equation of the line of best fit shown?

A. $n = 16{,}090 + 4{,}680t$

B. $n = 4{,}690 + 16{,}090t$

C. $n = 16{,}090 + 9{,}060t$

D. $n = 9{,}060 + 16{,}090t$

Question ID ab7740a8

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■■□

ID: ab7740a8

In which of the following tables is the relationship between the values of x and their corresponding y-values nonlinear?

A.

x	1	2	3	4
y	8	11	14	17

B.

x	1	2	3	4
y	4	8	12	16

C.

x	1	2	3	4
y	8	13	18	23

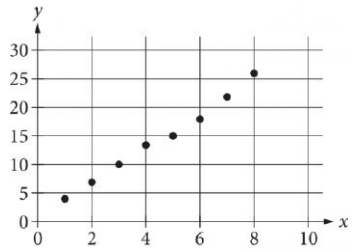
D.

x	1	2	3	4
y	6	12	24	48

Question ID 9eb896c5

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■■□

ID: 9eb896c5



Which of the following could be the equation for a line of best fit for the data shown in the scatterplot above?

A. $y = 3x + 0.8$

B. $y = 0.8x + 3$

C. $y = -0.8x + 3$

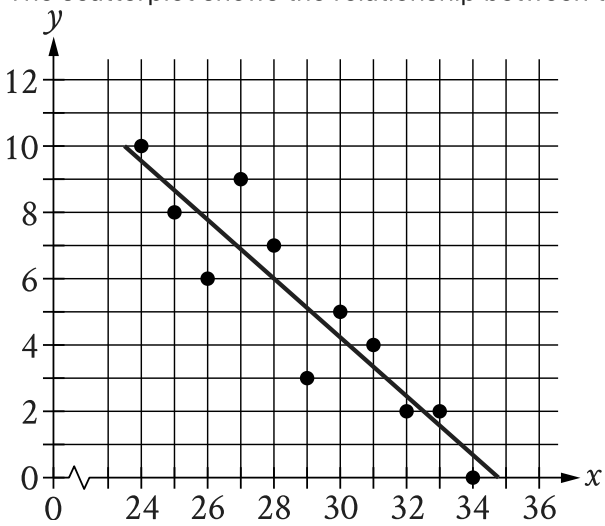
D. $y = -3x + 0.8$

Question ID fdfc90e4

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■■□

ID: fdfc90e4

The scatterplot shows the relationship between two variables, x and y. A line of best fit for the data is also shown.



At $x = 32$, which of the following is closest to the *y*-value predicted by the line of best fit?

A. 0.4

B. 1.5

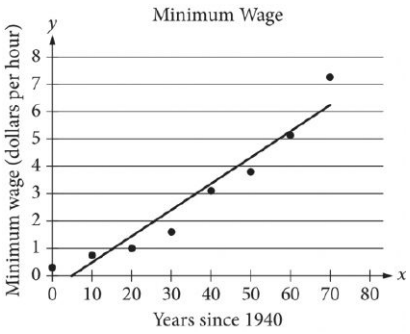
C. 2.4

D. 3.3

Question ID d6af3572

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■■■

ID: d6af3572



The scatterplot above shows the federal-mandated minimum wage every 10 years between 1940 and 2010. A line of best fit is shown, and its equation is $y = 0.096x - 0.488$. What does the line of best fit predict about the increase in the minimum wage over the 70-year period?

A. Each year between 1940 and 2010, the average increase in minimum wage was 0.096 dollars.

B. Each year between 1940 and 2010, the average increase in minimum wage was 0.49 dollars.

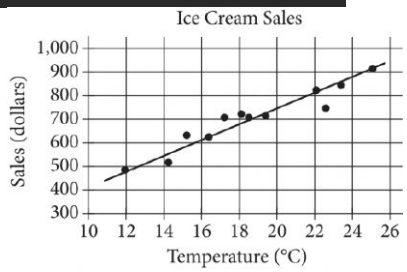
C. Every 10 years between 1940 and 2010, the average increase in minimum wage was 0.096 dollars.

D. Every 10 years between 1940 and 2010, the average increase in minimum wage was 0.488 dollars.

Question ID 1e1027a7

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■■■

ID: 1e1027a7



The scatterplot above shows a company's ice cream sales d, in dollars, and the high temperature t, in degrees Celsius (°C), on 12 different days. A line of best fit for the data is also shown. Which of the following could be an equation of the line of best fit?

A. $d = 0.03t + 402$

B. $d = 10t + 402$

C. $d = 33t + 300$

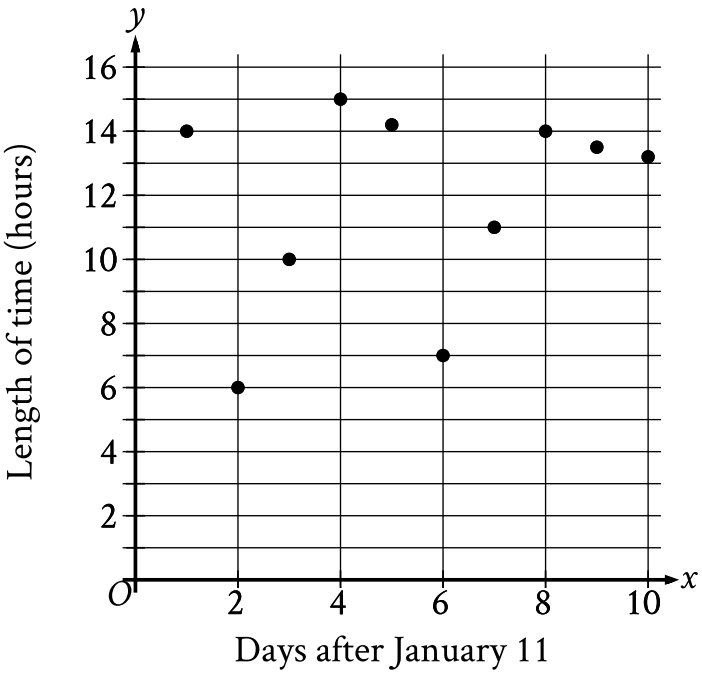
D. $d = 33t + 84$

Question ID 7b52985c

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■■■

ID: 7b52985c

The scatterplot shows the relationship between the length of time y, in hours, a certain bird spent in flight and the number of days after January 11, x.

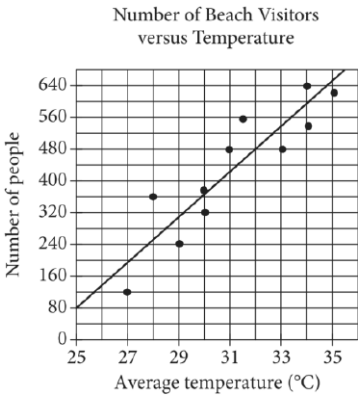


What is the average rate of change, in hours per day, of the length of time the bird spent in flight on January 13 to the length of time the bird spent in flight on January 15?

Question ID d0430601

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■■■

ID: d0430601



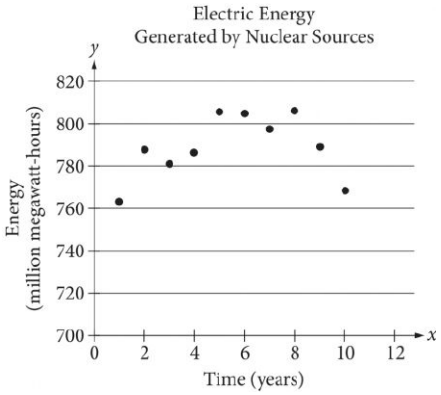
Each dot in the scatterplot above represents the temperature and the number of people who visited a beach in Lagos, Nigeria, on one of eleven different days. The line of best fit for the data is also shown. The line of best fit for the data has a slope of approximately 57. According to this estimate, how many additional people per day are predicted to visit the beach for each 5°C increase in average temperature?

Question ID e821a26d

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■■■

ID: e821a26d

The scatterplot below shows the amount of electric energy generated, in millions of megawatt-hours, by nuclear sources over a 10-year period.



Of the following equations, which best models the data in the scatterplot?

A. $y = 1.674x^2 + 19.76x - 745.73$

B. $y = -1.674x^2 - 19.76x - 745.73$

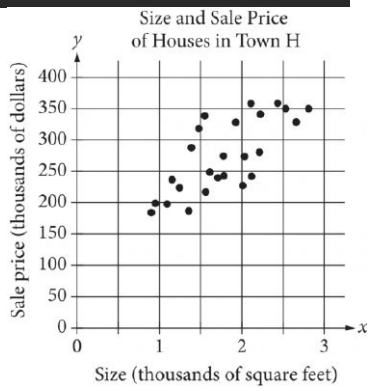
C. $y = 1.674x^2 + 19.76x + 745.73$

D. $y = -1.674x^2 + 19.76x + 745.73$

Question ID 79137c1b

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■■■

ID: 79137c1b



The scatterplot above shows the size x and the sale price y of 25 houses for sale in Town H. Which of the following could be an equation for a line of best fit for the data?

A. $y = 200x + 100$

B. $y = 100x + 100$

C. $y = 50x + 100$

D. $y = 100x$

Question ID af142f8d

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■■■

ID: af142f8d

	Amount invested	Balance increase
Account A	$500	6% annual interest
Account B	$1,000	$25 per year

Two investments were made as shown in the table above. The interest in Account A is compounded once per year. Which of the following is true about the investments?

A. Account A always earns more money per year than Account B.

B. Account A always earns less money per year than Account B.

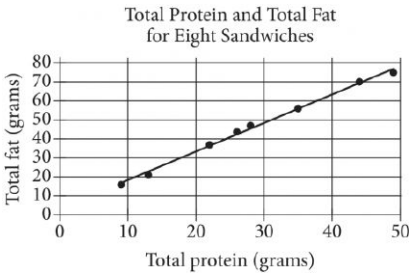
C. Account A earns more money per year than Account B at first but eventually earns less money per year.

D. Account A earns less money per year than Account B at first but eventually earns more money per year.

Question ID 9d95e7ad

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	■■■

ID: 9d95e7ad



The scatterplot above shows the numbers of grams of both total protein and total fat for eight sandwiches on a restaurant menu. The line of best fit for the data is also shown. According to the line of best fit, which of the following is closest to the predicted increase in total fat, in grams, for every increase of 1 gram in total protein?

A. 2.5

B. 2.0

C. 1.5

D. 1.0