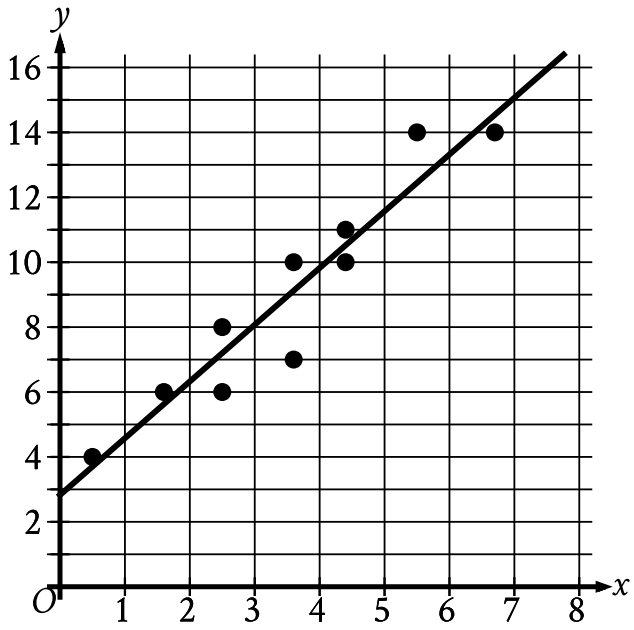
Question ID 9142011e

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	

ID: 9142011e

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



Which of the following equations best represents the line of best fit shown?

A. $y = 2.8 + 1.7x$

B. $y = 2.8 - 1.7x$

C. $y = -2.8 + 1.7x$

D. $y = -2.8 - 1.7x$

ID: 9142011e Answer

Correct Answer: A

Rationale

Choice A is correct. The line of best fit shown intersects the *y*-axis at a positive *y*-value and has a positive slope. The graph of an equation of the form $y = a + bx$, where a and b are constants, intersects the *y*-axis at a *y*-value of a and has a slope of b. Of the given choices, only choice A represents a line that intersects the *y*-axis at a positive *y*-value, 2.8, and has a positive slope, 1.7.

Choice B is incorrect. This equation represents a line that has a negative slope, not a positive slope.

Choice C is incorrect. This equation represents a line that intersects the *y*-axis at a negative *y*-value, not a positive *y*-value.

Choice D is incorrect. This equation represents a line that intersects the *y*-axis at a negative *y*-value, not a positive *y*-value, and has a negative slope, not a positive slope.

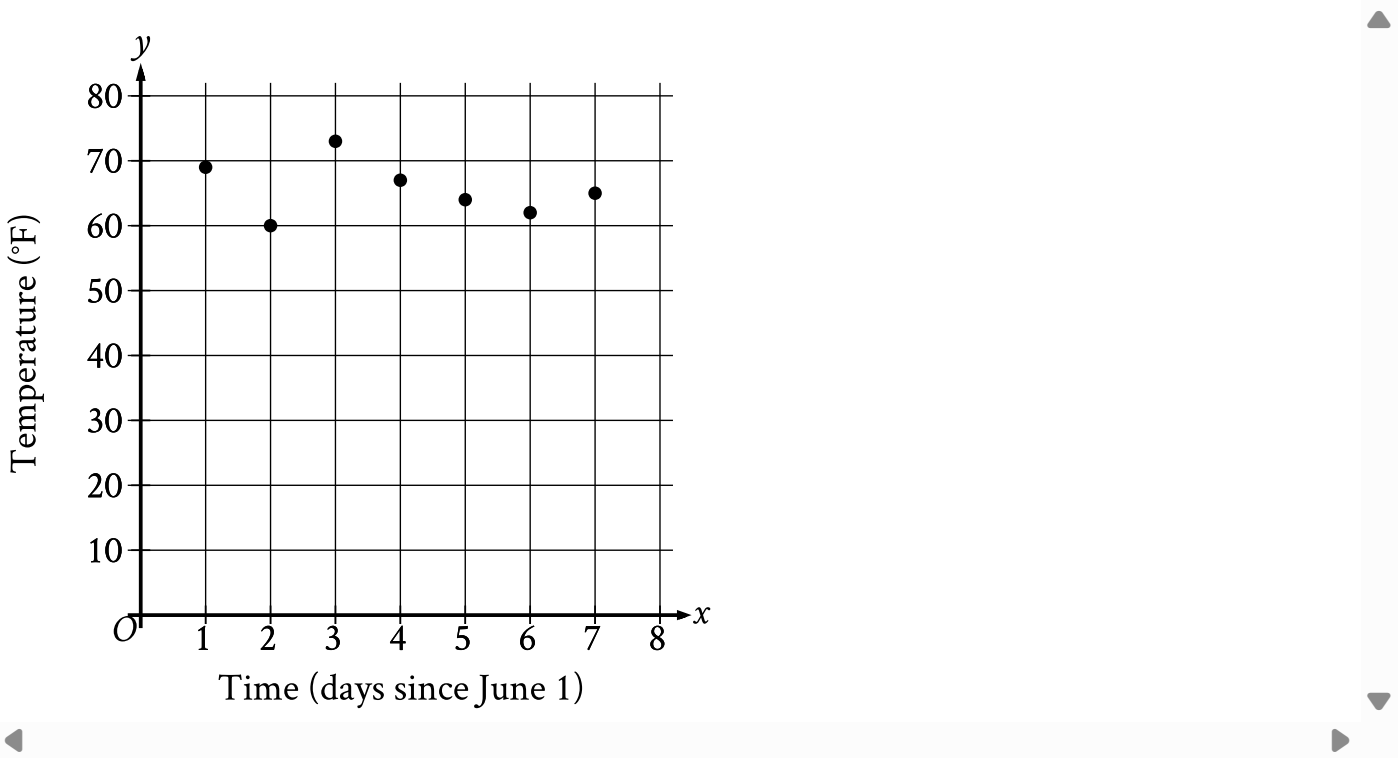
Question Difficulty: Easy

Question ID c387d395

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	

ID: c387d395

The scatterplot shows the temperature y, in $^\circ\text{F}$, 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 $x = 2$

ID: c387d395 Answer

Correct Answer: C

Rationale

Choice C is correct. The scatterplot shows that there was an increase in recorded temperature from $x = 2$ to $x = 3$ and from $x = 6$ to $x = 7$. When $x = 2$, the recorded temperature was approximately $60°\text{F}$ and when $x = 3$, the recorded temperature was greater than $70°\text{F}$. This means that the increase in recorded temperature from $x = 2$ to $x = 3$ was greater than $(70 - 60)°\text{F}$, or $10°\text{F}$. When $x = 6$, the recorded temperature was greater than $60°\text{F}$ and when $x = 7$, the recorded temperature was less than $70°\text{F}$. This means that the increase in recorded temperature from $x = 6$ to $x = 7$ was less than $(70 - 60)°\text{F}$, or $10°\text{F}$. It follows that the greatest increase in recorded temperature took place from $x = 2$ to $x = 3$.

Choice A is incorrect. The increase in recorded temperature from $x = 6$ to $x = 7$ was less than the increase in recorded temperature from $x = 2$ to $x = 3$.

Choice B is incorrect. From $x = 5$ to $x = 6$, a decrease, not an increase, in recorded temperature took place.

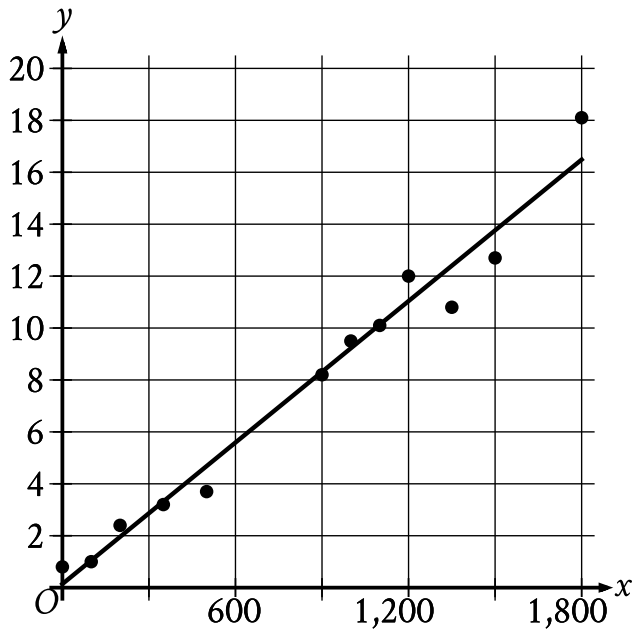
Choice D is incorrect. From $x = 1$ to $x = 2$, a decrease, not an increase, in recorded temperature took place.

Question Difficulty: Easy

Question ID f8bfe491

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	

ID: f8bfe491



Twelve data points are shown in the scatterplot. A line of best fit for the data is also shown. At $x = 1{,}200$, which of the following is closest to the *y*-value predicted by the line of best fit?

A. 16

B. 14

C. 11

D. 6

ID: f8bfe491 Answer

Correct Answer: C

Rationale

Choice C is correct. On the line of best fit, an *x*-value of $1{,}200$ corresponds to a *y*-value between 10 and 12. Therefore, of the given choices, 11 is closest to the *y*-value predicted by the line of best fit at $x = 1{,}200$.

Choice A is incorrect. This is the integer value closest to the *y*-value predicted by the line of best fit at $x = 1{,}800$.

Choice B is incorrect. This is the integer value closest to the *y*-value predicted by the line of best fit at $x = 1{,}500$.

Choice D is incorrect. This is the integer value closest to the *y*-value predicted by the line of best fit at $x = 600$.

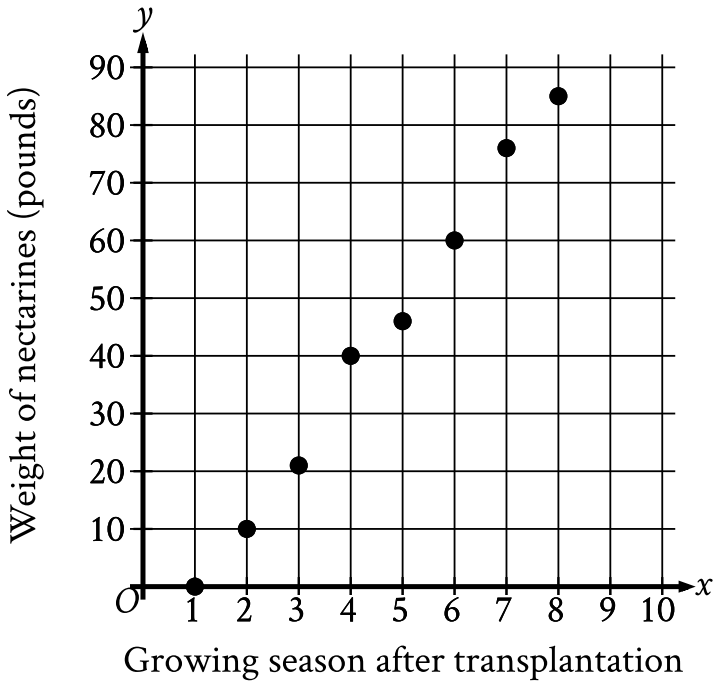
Question Difficulty: Easy

Question ID f6571d2b

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	

ID: f6571d2b

An orchard owner recorded the weight, in pounds, of all nectarines that grew on a dwarf nectarine tree during each growing season after the tree's transplantation. The scatterplot shows this weight, in pounds, for each growing season after the tree's transplantation.



What was the weight, to the nearest pound, of all nectarines that grew on the tree during the 4th growing season after the tree's transplantation?

ID: f6571d2b Answer

Correct Answer: 40

Rationale

The correct answer is 40. For each data point on the scatterplot, the x-value represents the growing season after transplantation and the y-value represents the weight, in pounds, of all nectarines that grew on the tree during the season. The scatterplot shows a data point at $4, 40$. It follows that during the 4th growing season after the tree's transplantation, 40 pounds of nectarines grew on the tree.

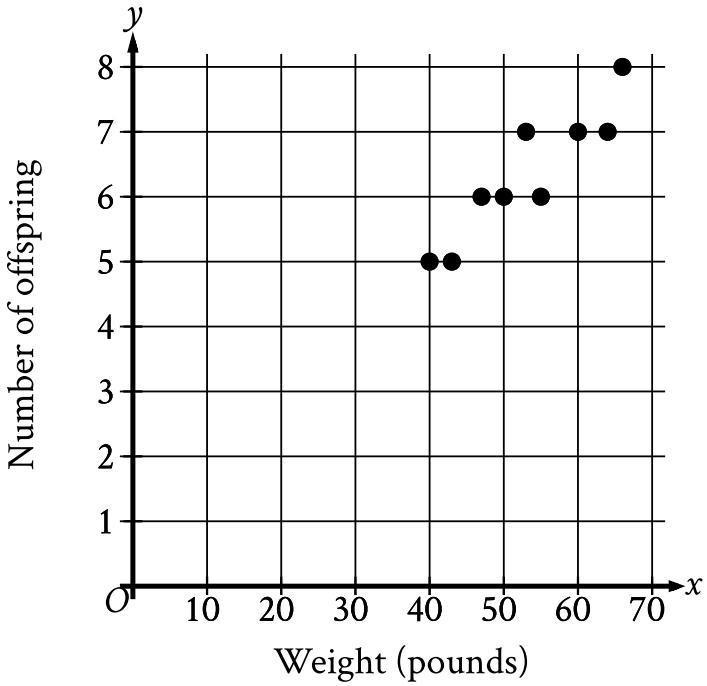
Question Difficulty: Easy

Question ID 1075bb9c

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	

ID: 1075bb9c

The scatterplot shows the relationship between the weight, in pounds, of each of 9 female gray wolves on April 30 and the number of offspring each gray wolf produced.



How many offspring did the 50-pound gray wolf produce?

A. 8

B. 7

C. 6

D. 5

ID: 1075bb9c Answer

Correct Answer: C

Rationale

Choice C is correct. For each point on the scatterplot shown, the x-value represents the weight, in pounds, of a female gray wolf and the y-value represents the number of offspring that wolf produced. The point on the graph with an x-value of 50 has a y-value of 6. Therefore, the 50-pound gray wolf produced 6 offspring.

Choice A is incorrect. One of the wolves produced 8 offspring, but its weight was greater than 50 pounds.

Choice B is incorrect. Three of the wolves produced 7 offspring each, but their weights were each greater than 50 pounds.

Choice D is incorrect. Two of the wolves produced 5 offspring each, but their weights were each less than 50 pounds.

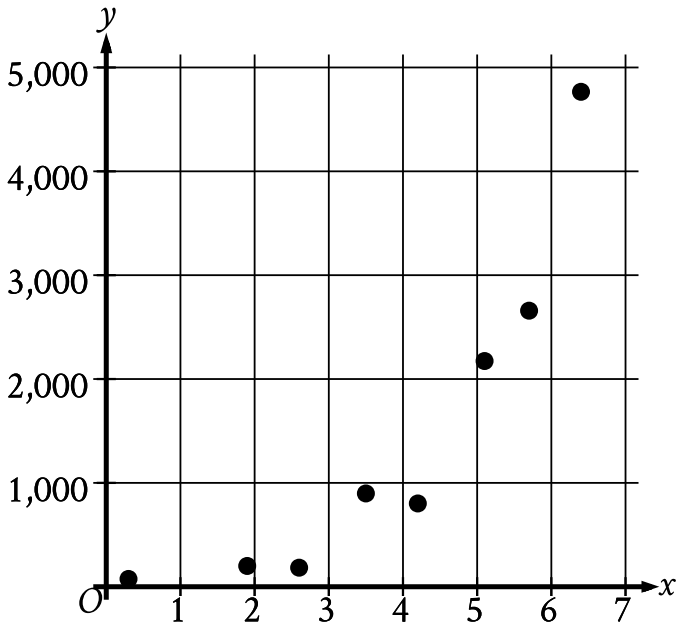
Question Difficulty: Easy

Question ID 634bde56

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	

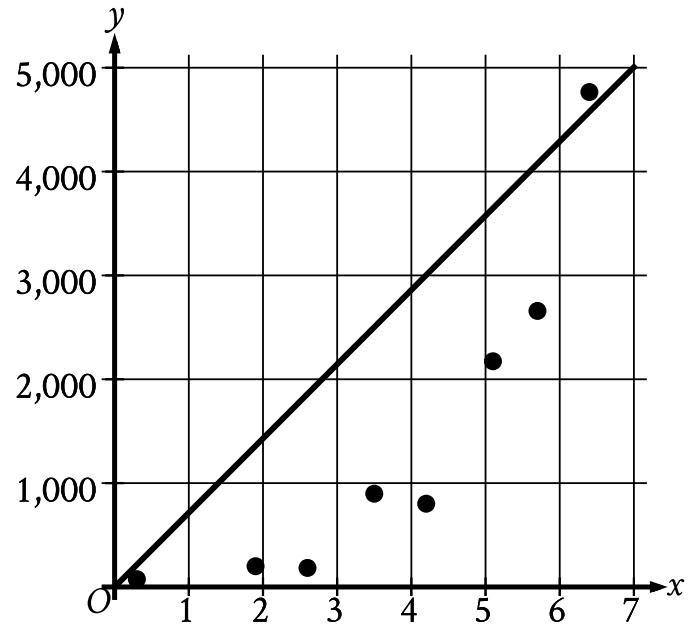
ID: 634bde56

The scatterplot shows the relationship between two variables, x and y.

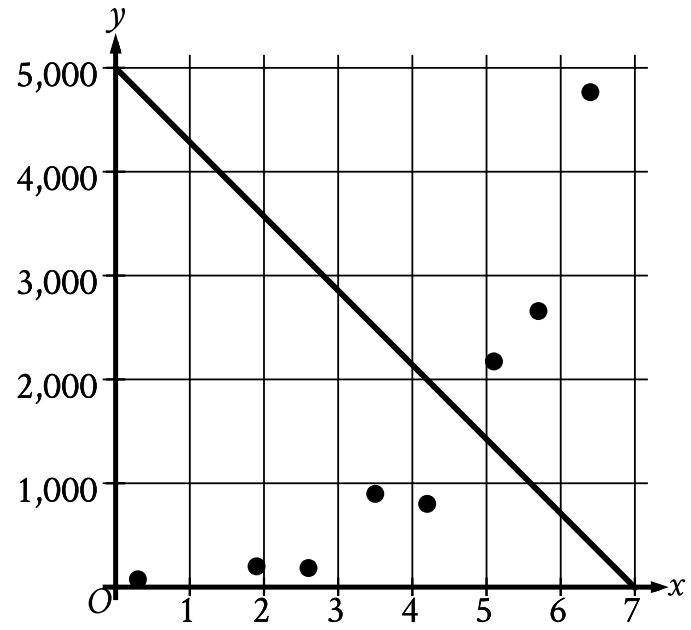


Which of the following graphs shows the most appropriate model for the data?

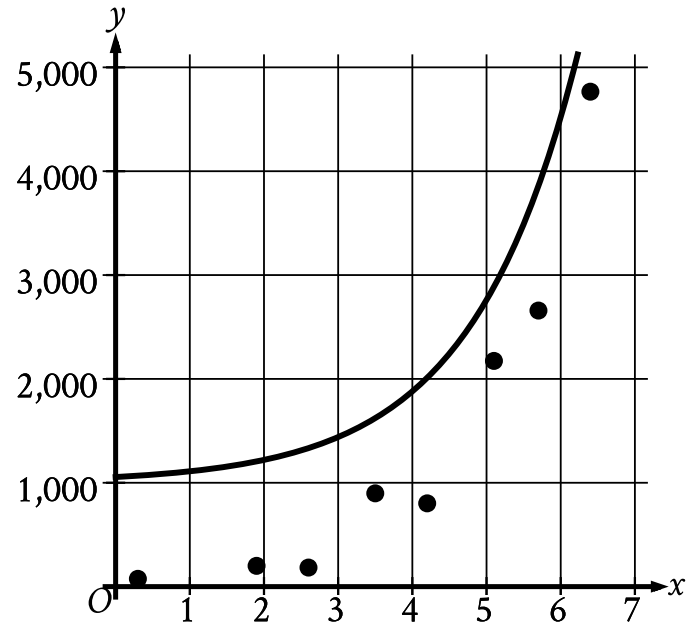
A.



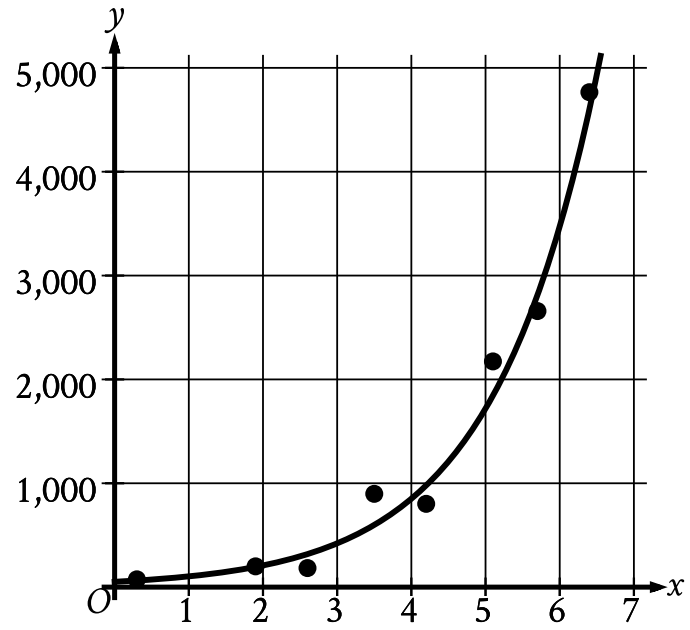
B.


y
5,000
4,000
3,000
2,000
1,000
O
1
2
3
4
5
6
7
x

C.


y
5,000
4,000
3,000
2,000
1,000
O
1
2
3
4
5
6
7
x

D.



ID: 634bde56 Answer

Correct Answer: D

Rationale

Choice D is correct. An appropriate model should follow the trend of the data points and should have data points both above and below the model. The scatterplot shows that the data points have an increasing trend that is curved. Therefore, an appropriate model should be an increasing curve with data points both above and below the model. Of the given choices, only the model in choice D is an increasing curve with data points both above and below the model.

Choice A is incorrect. Since the trend of the data points isn't linear, a line isn't the most appropriate model for the data.

Choice B is incorrect. Since the trend of the data points is increasing and isn't linear, a decreasing line isn't the most appropriate model for the data.

Choice C is incorrect. All the data points are below the model shown in this graph.

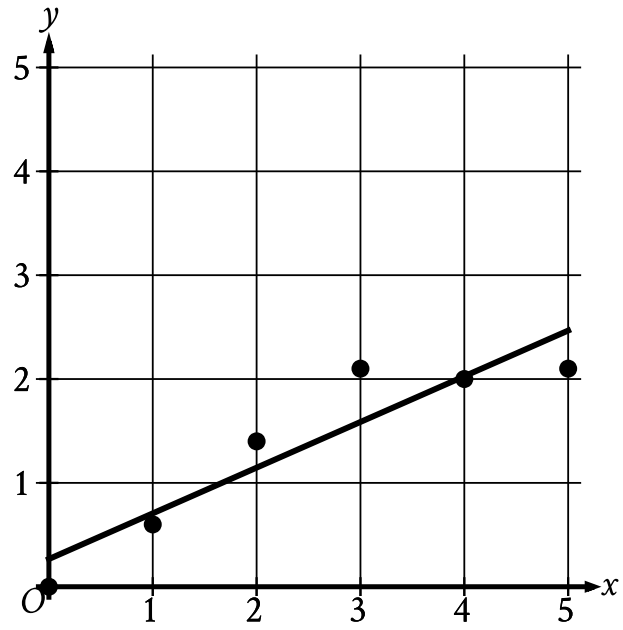
Question Difficulty: Easy

Question ID 65af419a

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	

ID: 65af419a

The scatterplot shows the relationship between 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. -2.27

B. -0.44

C. 0.44

D. 2.27

ID: 65af419a Answer

Correct Answer: C

Rationale

Choice C is correct. It's given that the scatterplot shows the relationship between two variables, x and y, and a line of best fit is shown. For the line of best fit shown, for each increase in the value of x by 1, the corresponding value of y increases by a constant rate. It follows that the relationship between the variables x and y has a positive linear trend. A line in the xy-plane that passes through the points a, b and c, d has a slope of $\frac{d - b}{c - a}$. The line of best fit shown passes approximately through the points $0, 0.25$ and $4, 2$. It follows that the slope of this line is approximately $\frac{2 - 0.25}{4 - 0}$, which is equivalent to 0.4375. Therefore, of the given choices, 0.44 is closest to the slope of the line of best fit shown.

Choice A is incorrect. This is the slope of a line of best fit for a relationship between x and y that has a negative, rather than a positive, linear trend.

Choice B is incorrect. This is the slope of a line of best fit for a relationship between x and y that has a negative, rather than a positive, linear trend.

Choice D is incorrect and may result from conceptual or calculation errors.

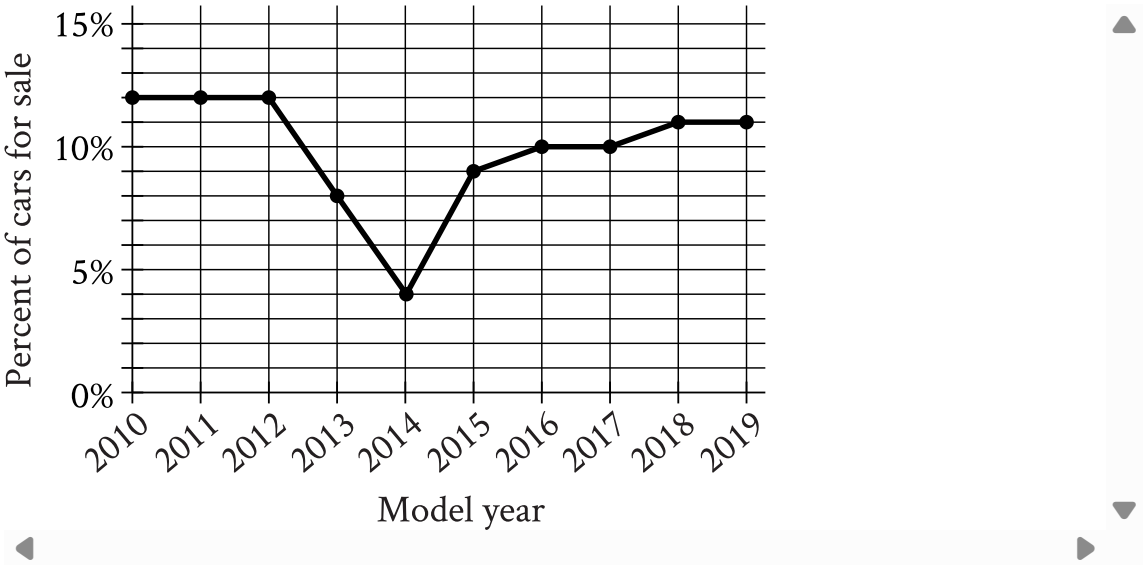
Question Difficulty: Easy

Question ID c1832bfe

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	

ID: c1832bfe

The line graph shows the percent of cars for sale at a used car lot on a given day by model year.



For what model year is the percent of cars for sale the smallest?

A. 2012

B. 2013

C. 2014

D. 2015

ID: c1832bfe Answer

Correct Answer: C

Rationale

Choice C is correct. For the given line graph, the percent of cars for sale at a used car lot on a given day is represented on the vertical axis. The percent of cars for sale is the smallest when the height of the line graph is the lowest. The lowest height of the line graph occurs for cars with a model year of 2014.

Choice A is incorrect and may result from conceptual errors.

Choice B is incorrect and may result from conceptual errors.

Choice D is incorrect and may result from conceptual errors.

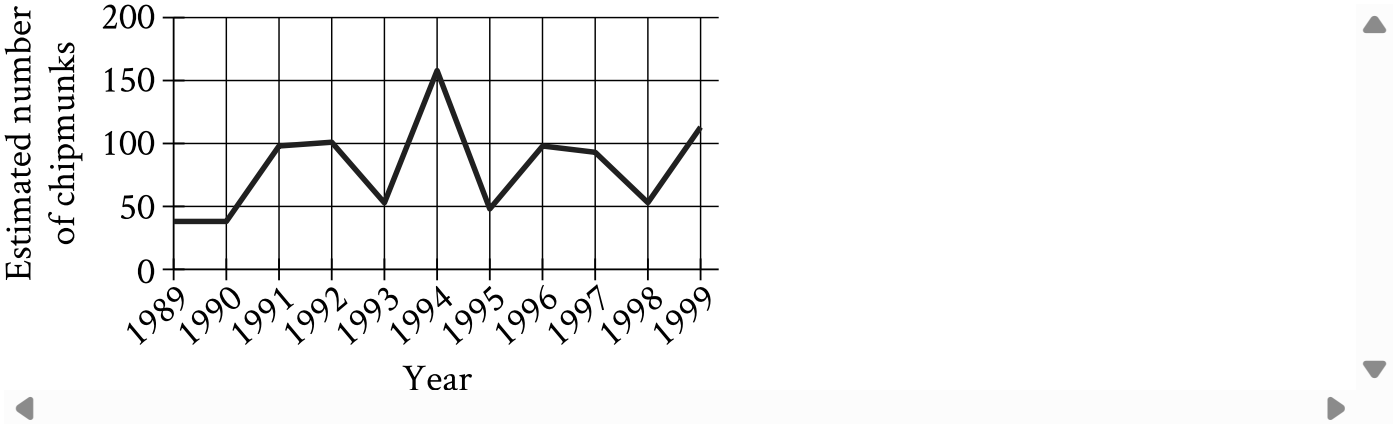
Question Difficulty: Easy

Question ID 3317d95c

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	

ID: 3317d95c

The line graph shows the estimated number of chipmunks in a state park on April 1 of each year from 1989 to 1999.



Based on the line graph, in which year was the estimated number of chipmunks in the state park the greatest?

A. 1989

B. 1994

C. 1995

D. 1998

ID: 3317d95c Answer

Correct Answer: B

Rationale

Choice B is correct. For the given line graph, the estimated number of chipmunks is represented on the vertical axis. The greatest estimated number of chipmunks in the state park is indicated by the greatest height in the line graph. This height is achieved when the year is 1994.

Choice A is incorrect and may result from conceptual errors.

Choice C is incorrect and may result from conceptual errors.

Choice D is incorrect and may result from conceptual errors.

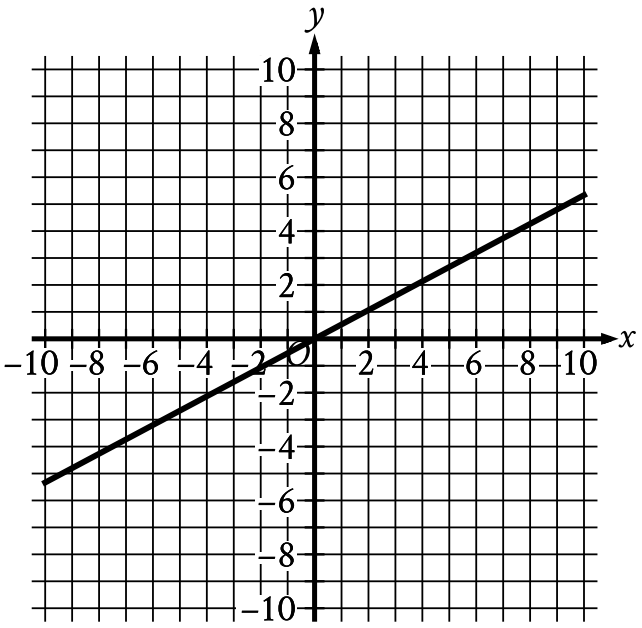
Question Difficulty: Easy

Question ID e392a4aa

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	

ID: e392a4aa

The graph of function f is shown, where $y = f(x)$.



Which of the following describes function f?

A. Increasing linear

B. Decreasing linear

C. Increasing exponential

D. Decreasing exponential

ID: e392a4aa Answer

Correct Answer: A

Rationale

Choice A is correct. The graph of function f shows that as x increases, fx also increases, which means fx is an increasing function. The graph of f is a line, which indicates a constant rate of change. A function that has a constant rate of change is a linear function. Therefore, function f can be described as increasing linear.

Choice B is incorrect. For a decreasing function, as x increases, fx decreases, rather than increases.

Choice C is incorrect. The graph of an exponential function isn't a line.

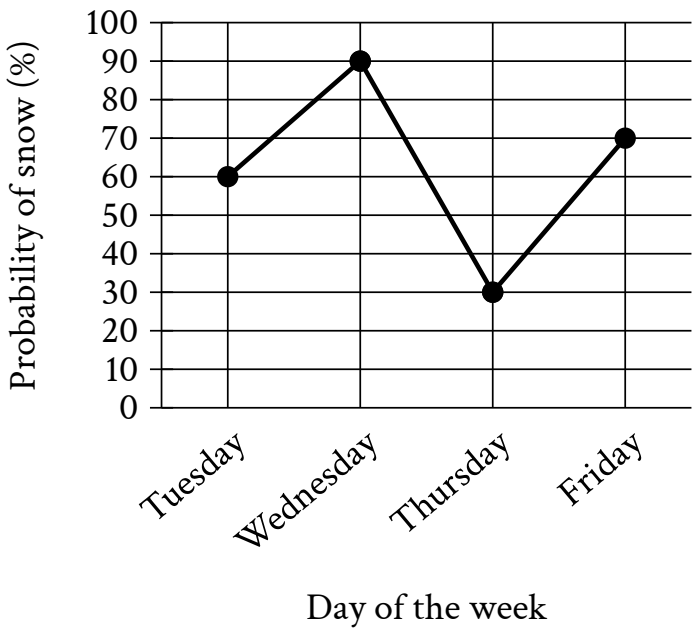
Choice D is incorrect. For a decreasing function, as x increases, $f(x)$ decreases, rather than increases, and the graph of an exponential function isn't a line.

Question Difficulty: Easy

Question ID 3c0867f9

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Two-variable data: Models and scatterplots	

ID: 3c0867f9



The line graph shows the probability of snow, as a percent, at a certain location for each day during a four-day period. According to the line graph, for which day during this four-day period is the probability of snow 30%?

A. Tuesday

B. Wednesday

C. Thursday

D. Friday

ID: 3c0867f9 Answer

Correct Answer: C

Rationale

Choice C is correct. For the line graph shown, the probability of snow, as a percent, is represented on the vertical axis. According to the line graph, during this four-day period, the probability of snow is 30% for Thursday.

Choice A is incorrect. The probability of snow on Tuesday is 60%.

Choice B is incorrect. The probability of snow on Wednesday is 90%.

Choice D is incorrect. The probability of snow on Friday is 70%.

Question Difficulty: Easy