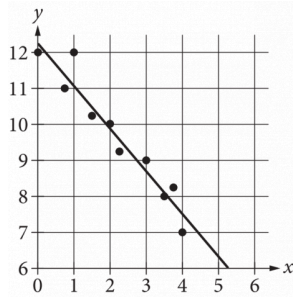
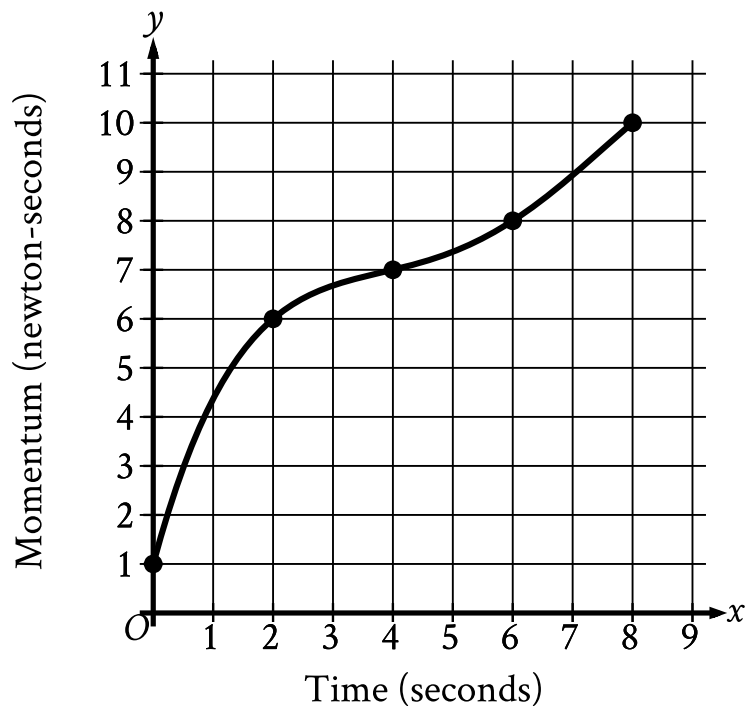


The scatterplot shows the relationship between two variables,  $x$  and  $y$ . A line of best fit for the data is also shown. Which of the following is closest to the difference between the  $y$ -coordinate of the data point with  $x = 1$  and the  $y$ -value predicted by the line of best fit at  $x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

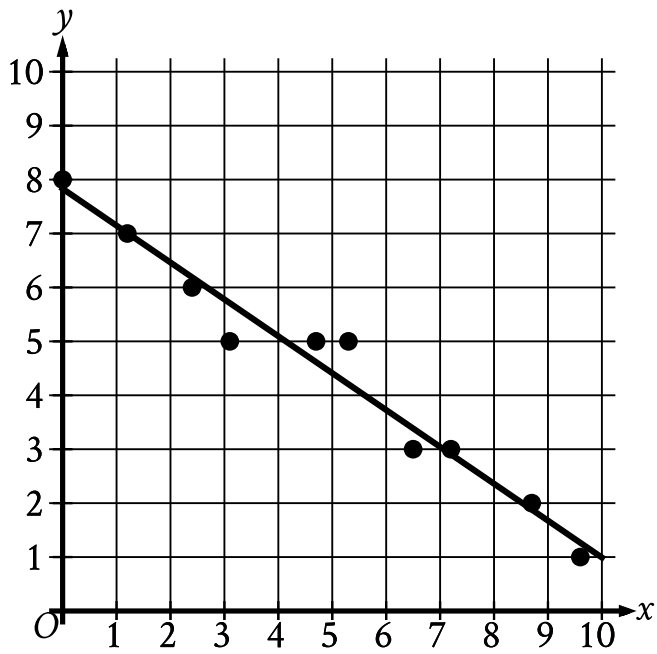


- A. 1
- B. 2
- C. 5
- D. 12



The graph shows the momentum  $y$ , in newton-seconds, of an object  $x$  seconds after the object started moving, for  $0 \leq x \leq 8$ . What is the average rate of change, in newton-seconds per second, in the momentum of the object from  $x = 2$  to  $x = 6$ ?

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



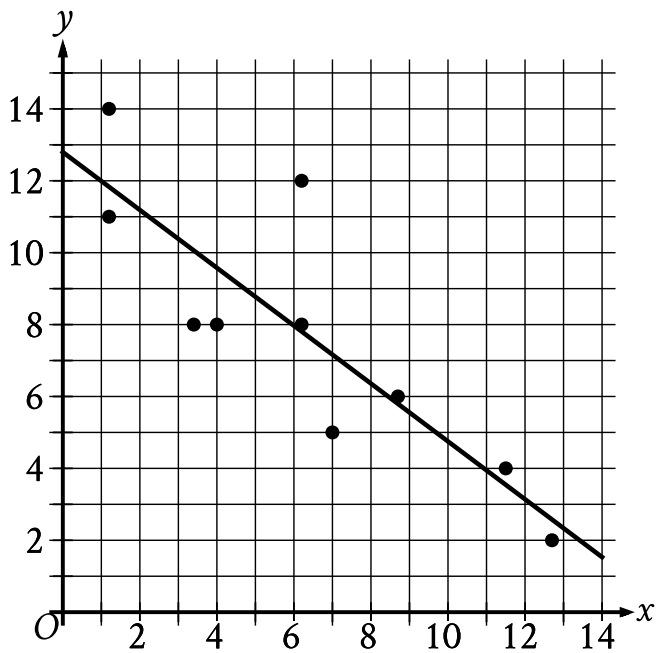
Which of the following is closest to the slope of this line of best fit?

- A. 7
- B. 0.7
- C.  $-0.7$
- D.  $-7$

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  $2^x < 2x+2$ .

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

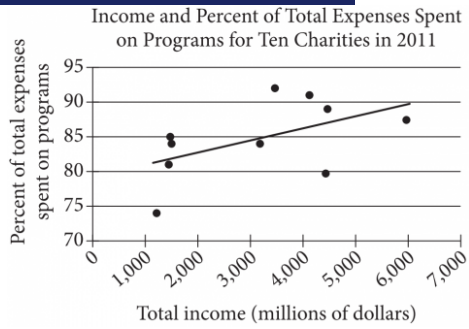


Which of the following is closest to the slope of the line of best fit shown?

- A.  $-2.4$
- B.  $-0.8$
- C.  $0.8$
- D.  $2.4$

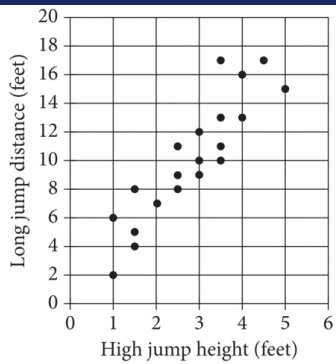
An inspector begins a day of work with a large sample of shirts that need to be checked for defects. The inspector works at a constant rate throughout the morning. What type of model is best to model the number of shirts remaining to be checked for defects at any given time throughout the morning?

- 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



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%



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?

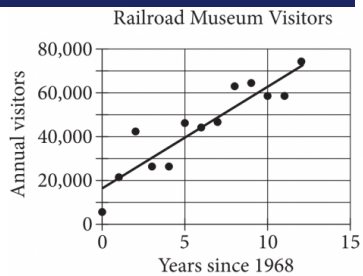
A.  $y = 0.82x + 3.30$

B.  $y = 0.82x - 0.82$

C.  $y = 3.30x + 0.82$

D.  $y = 3.30x - 3.30$





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.  $n = 9,060 + 16,090t$

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.

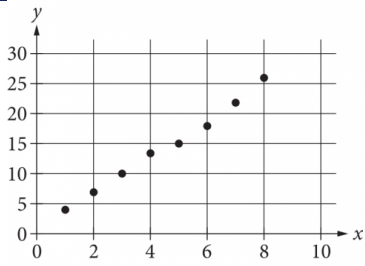
$x$	1	2	3	4
$y$	4	8	12	16

C.

$x$	1	2	3	4
$y$	8	13	18	23

D.

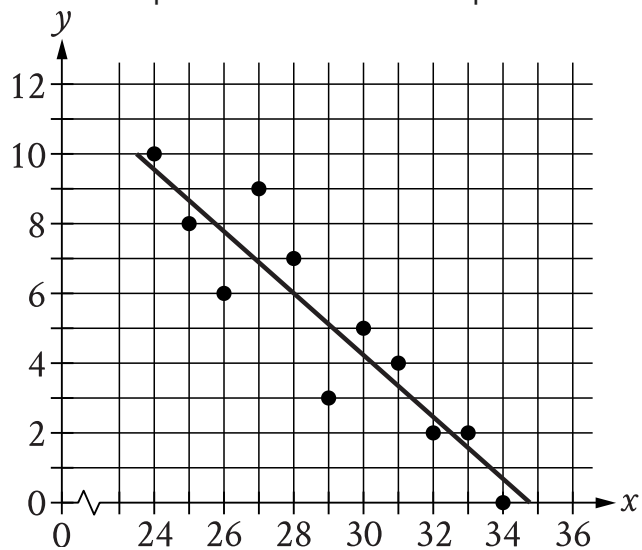
$x$	1	2	3	4
$y$	6	12	24	48



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.  $y = -3x + 0.8$

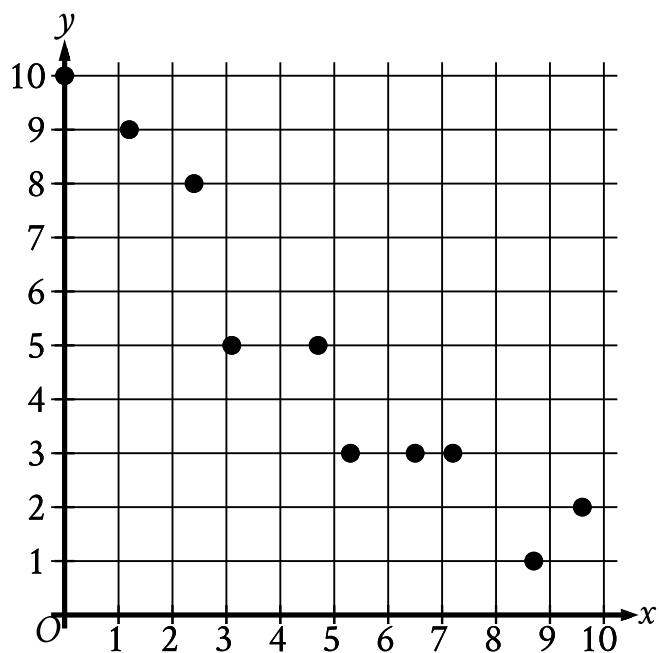
The scatterplot shows the relationship between two variables,  $x$  and  $y$ . A line of best fit for the data is also shown.



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

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



Which of the following equations is the most appropriate linear model for the data shown?

- A.  $y = 0.9 + 9.4x$
- B.  $y = 0.9 - 9.4x$
- C.  $y = 9.4 + 0.9x$
- D.  $y = 9.4 - 0.9x$