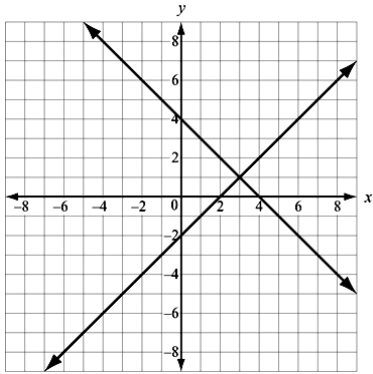


1) Two lines are graphed on this coordinate plane.



Which point appears to be a solution of the equations of both lines?

- A. (0, -2)
- B. (0, 4)
- C. (2, 0)
- D. (3, 1)

2) Based on the tables, at what point do the lines  $y = -x + 5$  and  $y = 2x - 1$  intersect?

$y = -x + 5$	
$x$	$y$
-1	6
0	5
1	4
2	3
3	2

$y = 2x - 1$	
$x$	$y$
-1	-3
0	-1
1	1
2	3
3	5

- A. (1, 1)
- B. (3, 5)
- C. (2, 3)
- D. (3, 2)

3) The first term in this sequence is -1.

$n$	1	2	3	4	5	...
$a_n$	-1	1	3	5	7	...

Which function represents the sequence?

- A.  $a_n = a_{n-1} + 1$
- B.  $a_n = a_{n-1} + 2$
- C.  $a_n = 2a_{n-1} - 1$
- D.  $a_n = 2a_{n-1} - 3$

4) Which function is modeled in this table?

$x$	$f(x)$
1	8
2	11
3	14
4	17

- A.  $f(x) = x + 7$
- B.  $f(x) = x + 9$
- C.  $f(x) = 2x + 5$
- D.  $f(x) = 3x + 5$

5) Which explicit formula describes the pattern in this table?

$d$	$C$
2	6.28
3	9.42
5	15.70
10	31.40

- A.  $d = 3.14 \times C$
- B.  $3.14 \times C = d$
- C.  $31.4 \times 10 = C$
- D.  $C = 3.14 \times d$

6) If  $f(12) = 4(12) - 20$ , which function gives  $f(x)$ ?

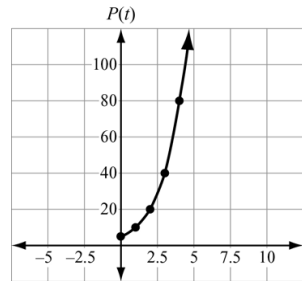
- A.  $f(x) = 4x$
- B.  $f(x) = 12x$
- C.  $f(x) = 4x - 20$
- D.  $f(x) = 12x - 20$

7) A farmer owns a horse that can continuously run an average of 8 miles an hour for up to 6 hours. Let  $y$  be the distance the horse can travel for a given  $x$  amount of time in hours. The horse's progress can be modeled by a function.

Which of the following describes the domain of the function?

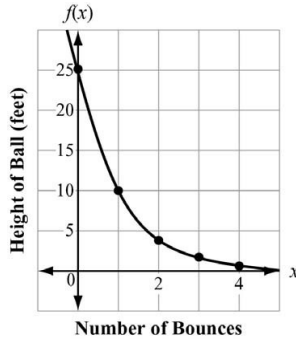
- A.  $0 \leq x \leq 6$
- B.  $0 \leq y \leq 6$
- C.  $0 \leq x \leq 48$
- D.  $0 \leq y \leq 48$

8) A population of squirrels doubles every year. Initially there were 5 squirrels. A biologist studying the squirrels created a function to model their population growth,  $P(t) = 5(2^t)$  where  $t$  is time. The graph of the function is shown. What is the range of the function?



- A. any real number
- B. any whole number greater than 0
- C. any whole number greater than 5
- D. any whole number greater than or equal to 5

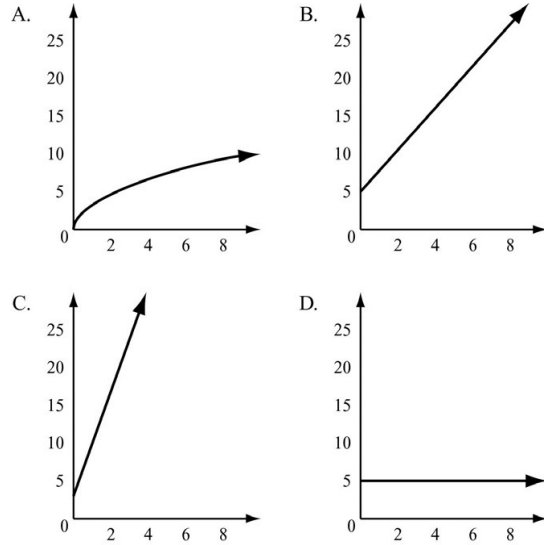
9) The function graphed on this coordinate grid shows  $f(x)$ , the height of a dropped ball in feet after its  $x$ th bounce.



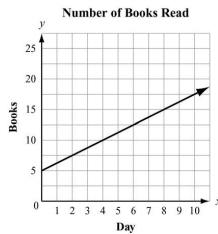
On which bounce was the height of the ball 10 feet?

- A. bounce 1
- B. bounce 2
- C. bounce 3
- D. bounce 4

10) To rent a canoe, the cost is \$3 for the oars and life preserver, plus \$5 an hour for the canoe. Which graph models the cost of renting a canoe?



11) Juan and Patti decided to see who could read the most books in a month. They began to keep track after Patti had already read 5 books that month. This graph shows the number of books Patti read for the next 10 days.



If Juan has read no books before the fourth day of the month and he reads at the same rate as Patti, how many books will he have read by day 12?

- A. 5
- B. 10
- C. 15
- D. 20

12) Which function represents this sequence?

$n$	1	2	3	4	5	...
$a_n$	6	18	54	162	486	...

- A.  $f(n) = 3^{n-1}$
- B.  $f(n) = 6^{n-1}$
- C.  $f(n) = 3(6^{n-1})$
- D.  $f(n) = 6(3^{n-1})$

13) The first term in this sequence is 3.

$n$	1	2	3	4	5	...
$a_n$	3	10	17	24	31	...

Which function represents the sequence?

- A.  $f(n) = n + 3$
- B.  $f(n) = 7n - 4$
- C.  $f(n) = 3n + 7$
- D.  $f(n) = n + 7$

14) The points (0, 1), (1, 5), (2, 25), (3, 125) are on the graph of a function. Which equation represents that function?

- A.  $f(x) = 2^x$
- B.  $f(x) = 3^x$
- C.  $f(x) = 4^x$
- D.  $f(x) = 5^x$

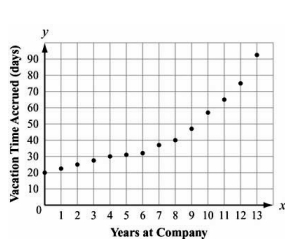
15) A function  $g$  is an odd function. If  $g(-3) = 4$ , which other point lies on the graph of  $g$ ?

- A. (3, -4)
- B. (-3, -4)
- C. (4, -3)
- D. (-4, 3)

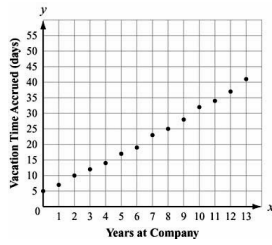
16) Which statement is true about the function  $f(x) = 7^x$ ?

- A. The function is odd because  $-f(x) = f(-x)$ .
- B. The function is even because  $-f(x) = f(-x)$ .
- C. The function is odd because  $f(x) = f(-x)$ .
- D. The function is even because  $f(x) = f(-x)$ .

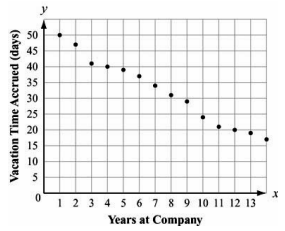
17) Which scatter plot BEST represents a model of linear growth?



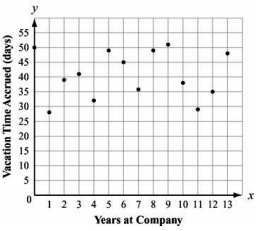
A.



B.

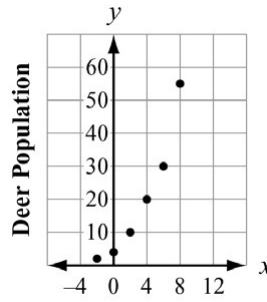


C.

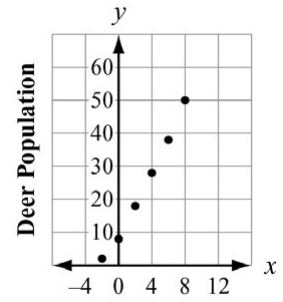


D.

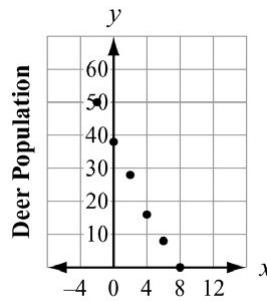
18) Which scatter plot BEST represents a model of exponential growth?



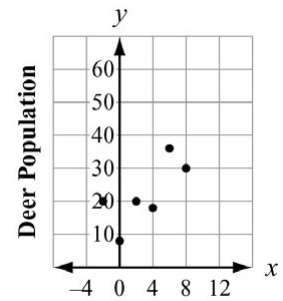
A.



B.



C.



D.

19) Which table represents an exponential function?

A. 

x	0	1	2	3	4
y	5	6	7	8	9

B. 

x	0	1	2	3	4
y	0	22	44	66	88

C. 

x	0	1	2	3	4
y	5	13	21	29	37

D. 

x	0	1	2	3	4
y	0	3	9	27	81

20) If the parent function is  $f(x) = mx + b$ , what is the value of the parameter  $m$  for the line passing through the points  $(-2, 7)$  and  $(4, 3)$ ?

- A. -9
- B.  $-\frac{3}{2}$
- C. -2
- D.  $-\frac{2}{3}$

1) This table shows the average low temperature, in °F, recorded in Macon, GA, and Charlotte, NC, over a six-day period.

Day	1	2	3	4	5	6
Temperature in Macon, GA (in °F)	71	72	66	69	71	73
Temperature in Charlotte, NC (in °F)	69	64	68	74	71	75

Which conclusion can be drawn from the data?

- A. The interquartile range of the temperatures is the same for both cities.
- B. The lower quartile for the temperatures in Macon is lower than the lower quartile for the temperatures in Charlotte.
- C. The mean and median temperatures of Macon were higher than the mean and median temperatures of Charlotte.
- D. The upper quartile for the temperatures in Charlotte was lower than the upper quartile for the temperatures in Macon.

2) A school was having a coat drive for a local shelter. A teacher determined the median number of coats collected per class and the interquartile ranges of the number of coats collected per class for the freshmen and for the sophomores.

- The freshmen collected a median number of coats per class of 10, and the interquartile range was 6.
- The sophomores collected a median number of coats per class of 10, and the interquartile range was 4.

Which range of numbers includes the third quartile of coats collected for both classes?

- A. 4 to 14
- B. 6 to 14
- C. 10 to 16
- D. 12 to 15

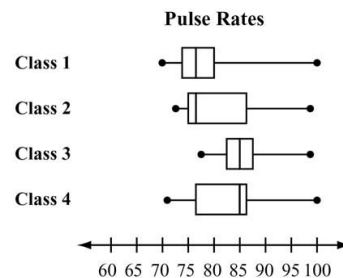
3) A reading teacher recorded the number of pages read in an hour by each of her students. The numbers are shown below.

44, 49, 39, 43, 50, 44, 45, 49, 51

For this data, which summary statistic is NOT correct?

- A. The minimum is 39.
- B. The lower quartile is 44.
- C. The median is 45.
- D. The maximum is 51.

4) A science teacher recorded the pulse rates for each of the students in her classes after the students had climbed a set of stairs. She displayed the results, by class, using the box plots shown.



Which class generally had the highest pulse rates after climbing the stairs?

- A. Class 1
- B. Class 2
- C. Class 3
- D. Class 4

5) Peter went bowling, Monday to Friday, two weeks in a row. He only bowled one game each time he went. He kept track of his scores below.

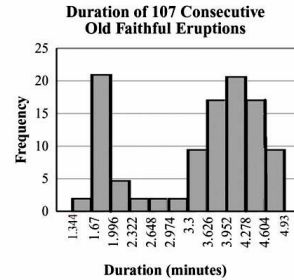
Week 1: 70, 70, 70, 73, 75

Week 2: 72, 64, 73, 73, 75

What is the BEST explanation of why Peter’s Week 2 mean score was lower than his Week 1 mean score?

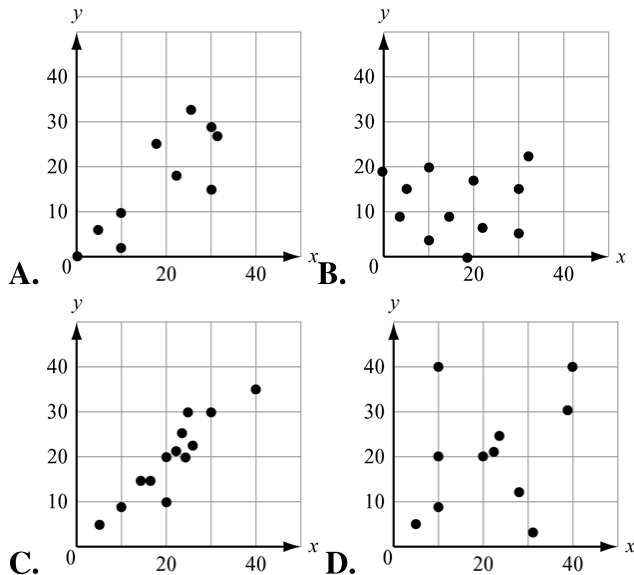
- A. Peter received the same score three times in Week 1.
- B. Peter had one very low score in Week 2.
- C. Peter did not beat his high score from Week 1 in Week 2.
- D. Peter had one very high score in Week 1.

6) This histogram shows the frequency distribution of duration times for 107 consecutive eruptions of the Old Faithful geyser. The duration of an eruption is the length of time, in minutes, from the beginning of the spewing of water until it stops. What is the BEST description for the distribution?

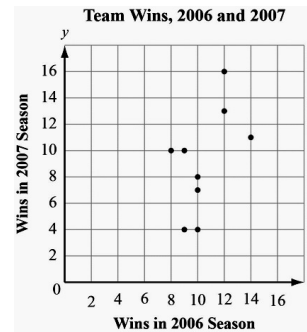


- A. bimodal
- B. uniform
- C. multiple outlier
- D. skewed to the right

7) Which graph MOST clearly displays a set of data for which a linear function is the model of best fit?



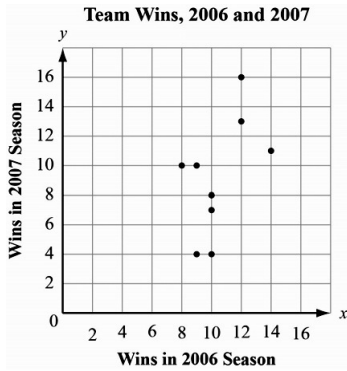
8) This graph plots the number of wins in the 2006 and 2007 seasons for a sample of professional football teams.



Which equation BEST represents a line that matches the trend of this data?

- A.  $y = \frac{1}{2}x$
- B.  $y = \frac{1}{2}x + 8$
- C.  $y = 2x - 6$
- D.  $y = 2x - 12$

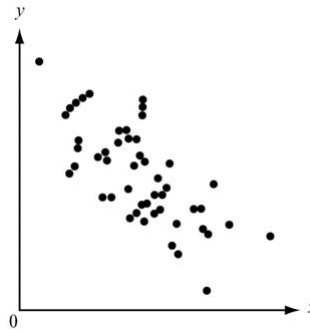
9) This graph plots the number of wins in the 2006 and 2007 seasons for a sample of professional football teams.



Based on the regression model, what is the predicted number of 2007 wins for a team that won 5 games in 2006?

- A. 0
- B. 3
- C. 8
- D. 10

10) Which BEST describes the correlation of the two variables shown in the scatter plot?



- A. weak positive
- B. strong positive
- C. weak negative
- D. strong negative