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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 range of the number of coats collected per class for the freshmen and for the sophomores.

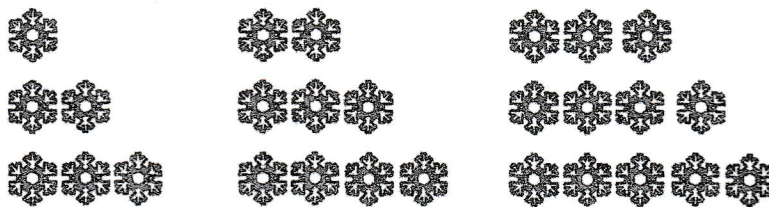
- The freshmen collected a median number of coats per class of 10, and the interquartile range was 6.
- The sophomores collected a median number of coats per class of 10, and the interquartile range was 4.

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

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

12

Consider this pattern.

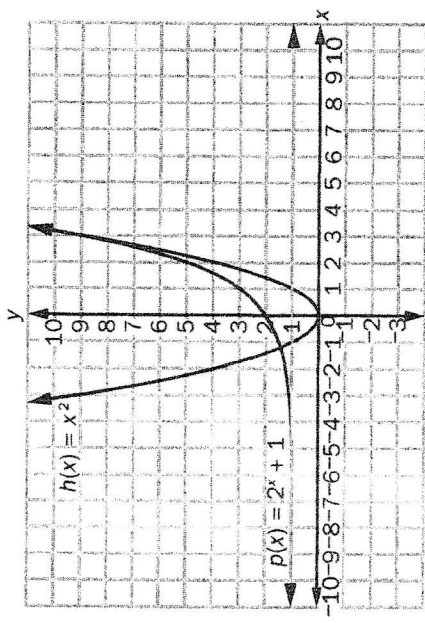


Which function represents the sequence that represents the pattern?

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

13

Look at the graph of the functions  $h(x)$  and  $p(x)$ .



Which transformations of  $h(x)$  and  $p(x)$  translate each function so both pass through the point  $(0, 1)$ ?

- A.  $h(x - 1) = (x - 1)^2$  and  $p(x + 1) = 2^{(x+1)} + 1$
- B.  $h(x + 1) = (x + 1)^2$  and  $p(x - 1) = 2^{(x-1)} + 1$
- C.  $h(x) - 1 = x^2 - 1$  and  $p(x) + 1 = 2^x + 1$
- D.  $h(x) + 1 = x^2 + 1$  and  $p(x) - 1 = 2^x - 1$

14

This equation can be used to find  $h$ , the number of hours it will take Flo and Bryan to mow their lawn.

$$\frac{h}{3} + \frac{h}{6} = 1$$

How many hours will it take them to mow their lawn?

- A. 6 hours
- B. 3 hours
- C. 2 hours
- D. 1 hour

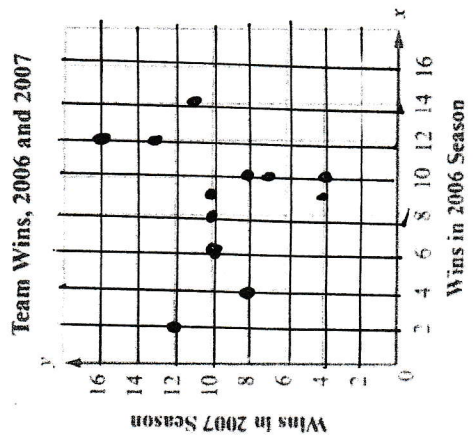
15

What are the solutions to the equation  $2x^2 - 2x - 12 = 0$ ?

- A.  $x = -4, x = 3$
- B.  $x = -3, x = 4$
- C.  $x = -2, x = 3$
- D.  $x = -6, x = 2$

16

This graph plots the number of wins in the 2006 season and in the 2007 season 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. 4
- B. 7
- C. 8
- D. 12

17

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.

18

The total area of two rectangles can be represented by the expression  $(x)(3x + 1) + (2x)(x + 3)$ . Which expression represents the total area of the two rectangles combined?

- A.  $7x^2$
- B.  $6x^3 + 6x^2$
- C.  $6x^2 + 7x$
- D.  $5x^2 + 7x$

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The graph of which equation passes through the points  $(-1, -3)$  and  $(-2, 3)$ ?

A  $y = -6x - 9$

B  $y = -\frac{1}{4}x + 3$

C  $y = 4x - 5$

D  $y = \frac{2}{3}x + 1$

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Which product is irrational?

A.  $\sqrt{2} \cdot \sqrt{50}$

B.  $\sqrt{64} \cdot \sqrt{4}$

C.  $\sqrt{9} \cdot \sqrt{49}$

D.  $\sqrt{10} \cdot \sqrt{8}$

21

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

A.  $f(x) = 4x^2 - 20$

B.  $f(x) = 4^x - 20$