

Algebra Quick Quiz 12052019

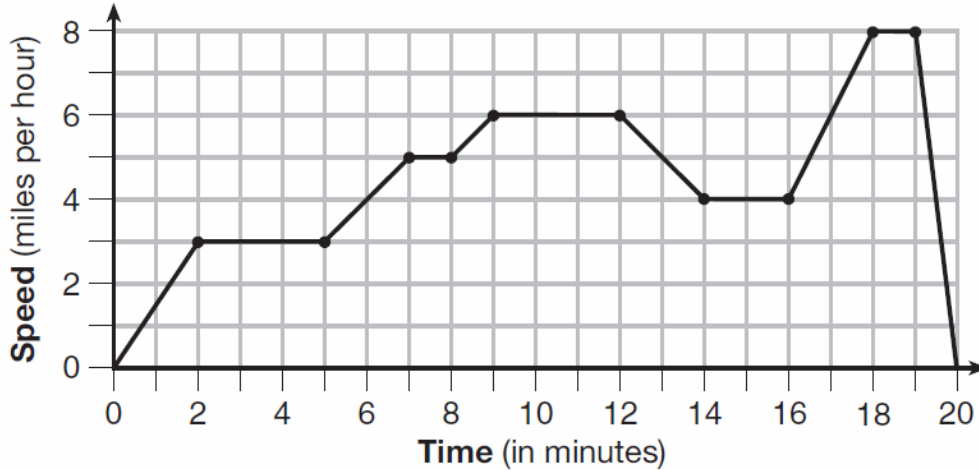
Question 1.

The cost of airing a commercial on television is modeled by the function $C(n) = 110n + 900$, where n is the number of times the commercial is aired. Based on this model, which statement is true?

- (1) The commercial costs \$0 to produce and \$110 per airing up to \$900.
- (2) The commercial costs \$110 to produce and \$900 each time it is aired.
- (3) The commercial costs \$900 to produce and \$110 each time it is aired.
- (4) The commercial costs \$1010 to produce and can air an unlimited number of times.

Question 2

The graph below represents a jogger's speed during her 20-minute jog around her neighborhood.



Which statement best describes what the jogger was doing during the 9–12 minute interval of her jog?

- (1) She was standing still.
- (2) She was increasing her speed.
- (3) She was decreasing her speed.
- (4) She was jogging at a constant rate.

Question 3.

If the area of a rectangle is expressed as $x^4 - 9y^2$, then the product of the length and the width of the rectangle could be expressed as

- (1) $(x - 3y)(x + 3y)$ (3) $(x^2 - 3y)(x^2 - 3y)$
(2) $(x^2 - 3y)(x^2 + 3y)$ (4) $(x^4 + y)(x - 9y)$

Question 4.

Which table represents a function?

| | | | | |
|-------------|---|---|---|---|
| x | 2 | 4 | 2 | 4 |
| f(x) | 3 | 5 | 7 | 9 |

(1)

| | | | | |
|-------------|---|---|---|---|
| x | 3 | 5 | 7 | 9 |
| f(x) | 2 | 4 | 2 | 4 |

(3)

| | | | | |
|-------------|---|----|----|---|
| x | 0 | -1 | 0 | 1 |
| f(x) | 0 | 1 | -1 | 0 |

(2)

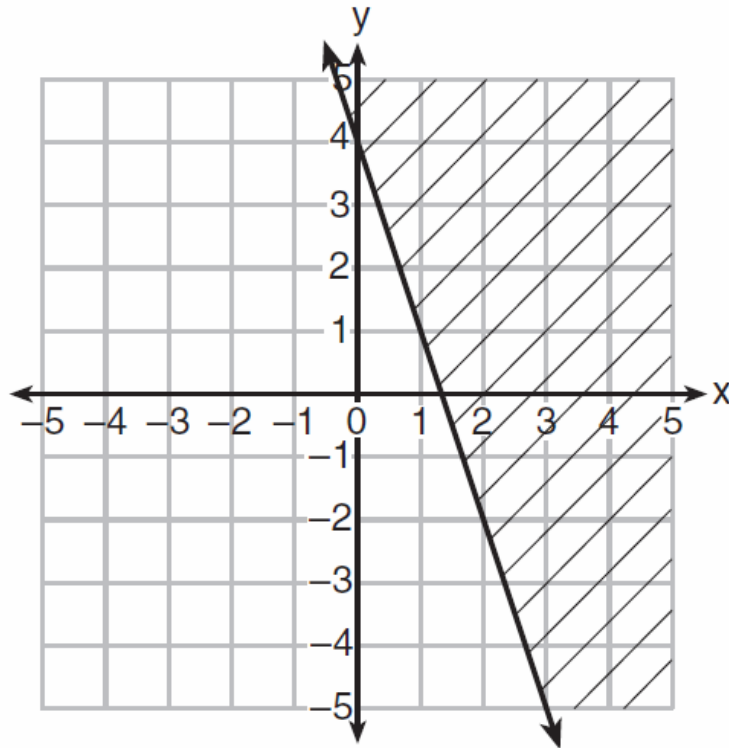
| | | | | |
|-------------|---|----|----|---|
| x | 0 | 1 | -1 | 0 |
| f(x) | 0 | -1 | 0 | 1 |

(4)

Question 5.

We have not covered the concept in the question below. But, you have graphing software. I am curious to see how you will handle it. Two of the answer choices are obviously wrong. Which are they? Use "Desmos" to check the other 2 to determine which is correct.

Which inequality is represented in the graph below?



(1) $y \geq -3x + 4$

(2) $y \leq -3x + 4$

(3) $y \geq -4x - 3$

(4) $y \leq -4x - 3$

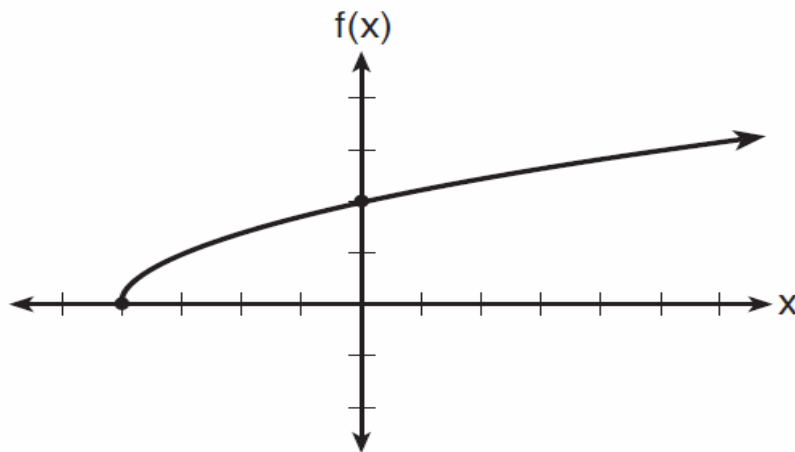
Question 6.

Which statement is *not* always true?

- (1) The sum of two rational numbers is rational.
- (2) The product of two irrational numbers is rational.
- (3) The sum of a rational number and an irrational number is irrational.
- (4) The product of a nonzero rational number and an irrational number is irrational.

Question 7.

The graph of the function $f(x) = \sqrt{x + 4}$ is shown below.



The domain of the function is

- | | |
|------------------------|-------------------------|
| (1) $\{x x > 0\}$ | (3) $\{x x > -4\}$ |
| (2) $\{x x \geq 0\}$ | (4) $\{x x \geq -4\}$ |

Question 8.

Use your graphing software only to check your answer. You are capable of doing this without graphing software. You can use either factoring or completing the square. Do which ever comes easier for you.

What are the zeros of the function $f(x) = x^2 - 13x - 30$?

(1) -10 and 3

(3) -15 and 2

(2) 10 and -3

(4) 15 and -2

Question 9.

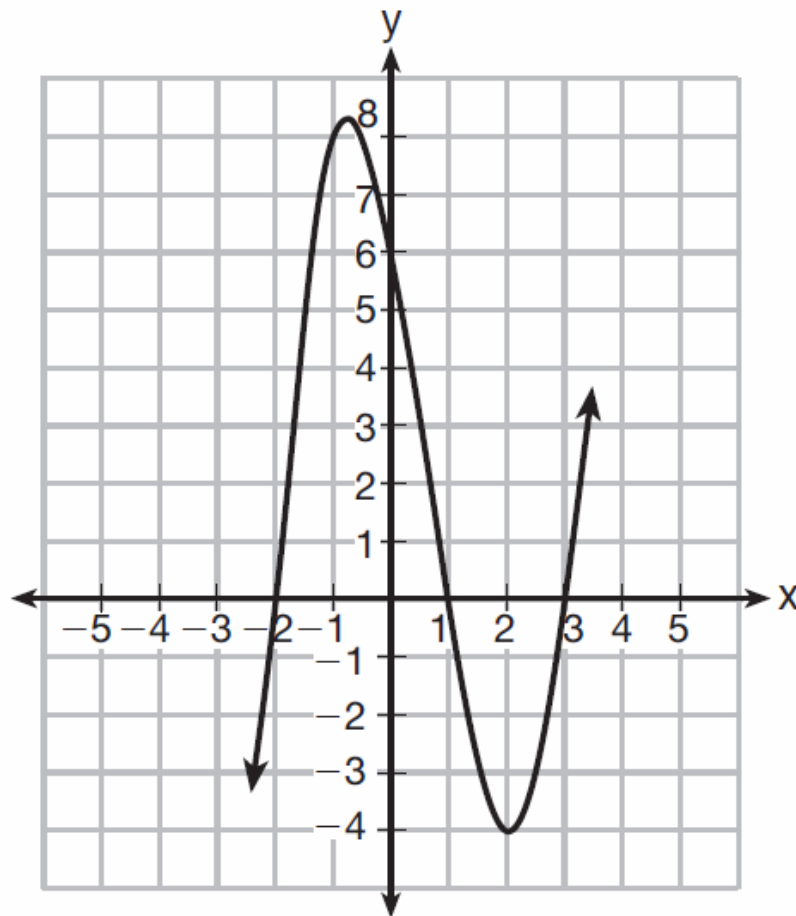
You should be able to figure this out without graphing software but use it if you have to.

Which equation(s) represent the graph below?

I $y = (x + 2)(x^2 - 4x - 12)$

II $y = (x - 3)(x^2 + x - 2)$

III $y = (x - 1)(x^2 - 5x - 6)$



(1) I, only

(2) II, only

(3) I and II

(4) II and III

Question 10.

Which quadratic function has the largest maximum?

$$h(x) = (3 - x)(2 + x)$$

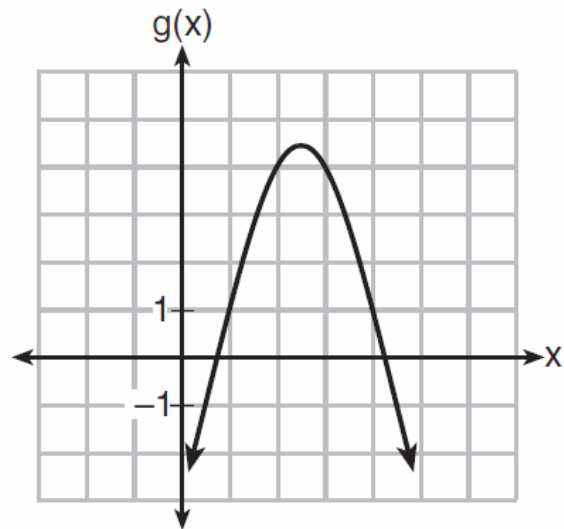
(1)

$$k(x) = -5x^2 - 12x + 4$$

(3)

| x | f(x) |
|----|------|
| -1 | -3 |
| 0 | 5 |
| 1 | 9 |
| 2 | 9 |
| 3 | 5 |
| 4 | -3 |

(2)

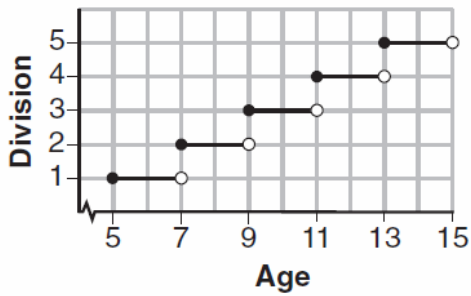


(4)

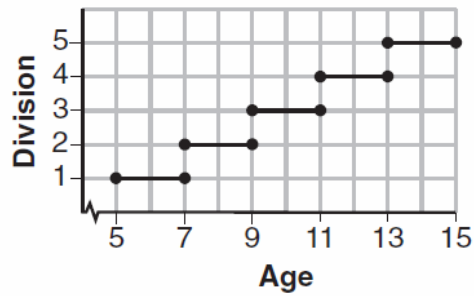
Bonus Question

Question 11

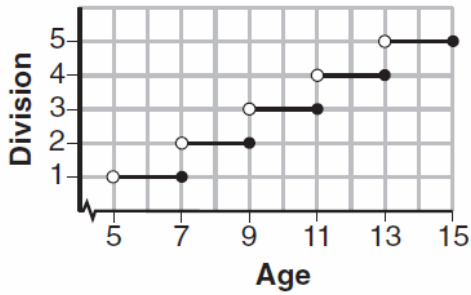
Morgan can start wrestling at age 5 in Division 1. He remains in that division until his next odd birthday when he is required to move up to the next division level. Which graph correctly represents this information?



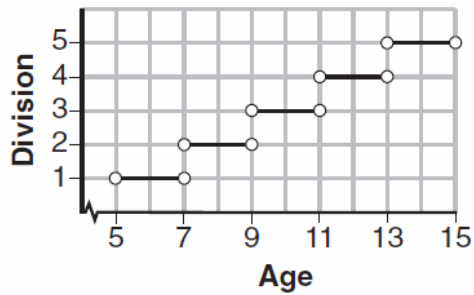
(1)



(3)



(2)



(4)