December 10, 2021

Algebra Quick Quiz

Question 1.

Which number will replace the question mark in the number pattern shown below?

0, 2, 2, 4, 6, 10, 16, 26, ?, . . .

F 28
G 36
H 42
J 46

Question 2.

What is the missing output value in the function table below?

input	output
2	5
1	4
0	3
−1	

A 2
B 1
C 0
D −1

Question. 3.

Evaluate $5(x + y)$ for $x = 3$ and $y = 9$.

A 17
B 24
C 60
D 72

Question 4.

Which is the algebraic sentence for "a number decreased by 6 is 12"?

F $x + 6 = 12$

G $x - 6 = 12$

H $6x = 12$

J $\frac{x}{6} = 12$

5.

Consider the graph of the equation $y = ax^2 + bx + c$, when $a \neq 0$. If a is multiplied by 3, what is true of the graph of the resulting parabola?

(1) The vertex is 3 units above the vertex of the original parabola.

(2) The new parabola is 3 units to the right of the original parabola.

(3) The new parabola is wider than the original parabola.

(4) The new parabola is narrower than the original parabola.

Question 6.

Which equation represents a line that is parallel to the line $y = -4x + 5$?

(1) $y = -4x + 3$

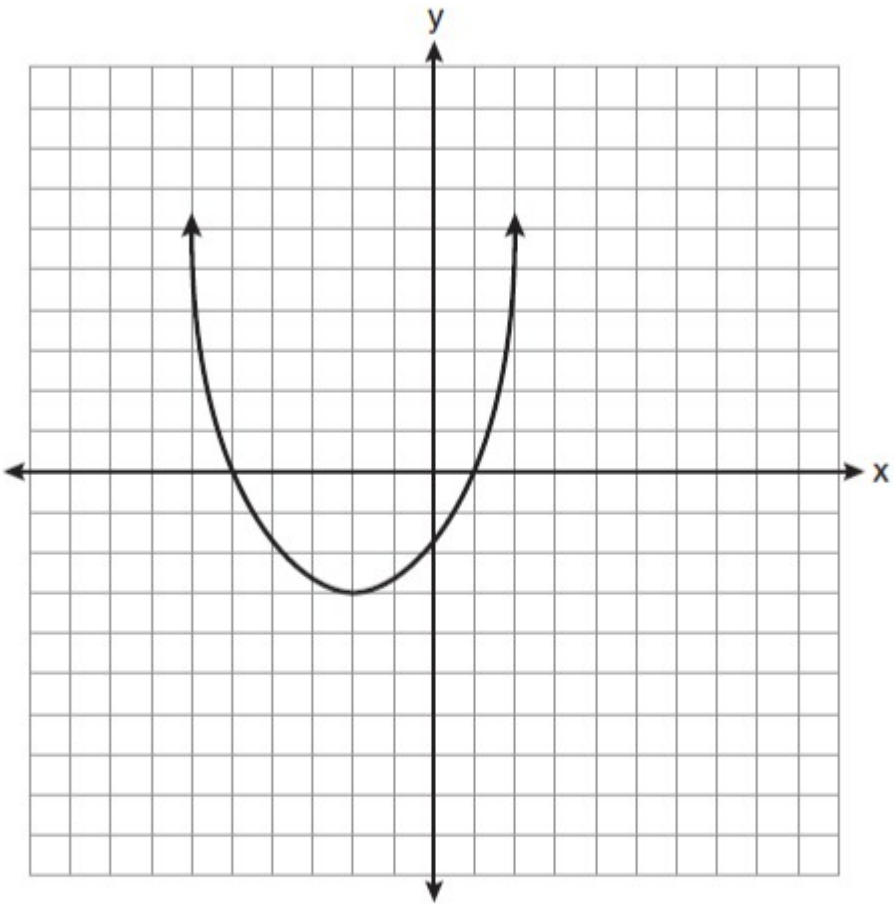
(2) $y = -\frac{1}{4}x + 5$

(3) $y = \frac{1}{4}x + 3$

(4) $y = 4x + 5$

Question 7.

What are the vertex and the axis of symmetry of the parabola shown in the diagram below?



(1) The vertex is (–2,–3), and the axis of symmetry is $x = -2$.

(2) The vertex is (–2,–3), and the axis of symmetry is $y = -2$.

(3) The vertex is (–3,–2), and the axis of symmetry is $y = -2$.

(4) The vertex is (–3,–2), and the axis of symmetry is $x = -2$.

Question 8.

Jack bought 3 slices of cheese pizza and 4 slices of mushroom pizza for a total cost of $12.50. Grace bought 3 slices of cheese pizza and 2 slices of mushroom pizza for a total cost of $8.50. What is the cost of one slice of mushroom pizza?

(1) $1.50
(2) $2.00
(3) $3.00
(4) $3.50

Question 9.

Which ordered pair is a solution to the system of equations $y = x$ and $y = x^2 - 2$?

(1) (–2,–2)
(2) (–1,1)
(3) (0,0)
(4) (2,2)

Question 10.

Students in a ninth grade class measured their heights, h, in centimeters. The height of the shortest student was 155 cm, and the height of the tallest student was 190 cm. Which inequality represents the range of heights?

(1) $155 < h < 190$
(2) $155 \leq h \leq 190$
(3) $h \geq 155$ or $h \leq 190$
(4) $h > 155$ or $h < 190$

Question 11.
Bonus

Members of a high school sports team are selling boxes of popcorn and boxes of pretzels for a fundraiser. They earn $2 for every box of popcorn they sell and $5 for every box of pretzels. The members want to earn at least $500 from all sales.

Let x represent the number of boxes of popcorn sold and let y represent the number of boxes of pretzels sold.

Part A

What inequality represents the number of boxes of popcorn and the number of boxes of pretzels that need to be sold to reach the goal of earning at least $500?

- A. $2x + 5y \geq 500$
- B. $5x + 2y \geq 500$
- C. $(2 + x)(5 + y) \geq 500$
- D. $(5 + x)(2 + y) \geq 500$

Part B

A line exists that serves as the boundary for the points making up the solution set of the inequality representing the numbers of boxes of popcorn and boxes of pretzels sold. Consider the line graphed in the xy-coordinate plane. What would be the interpretation, in context, of its slope?

- A. For every increase of 2 boxes of popcorn sold, 5 more boxes of pretzels need to be sold to earn $500.
- B. For every increase of 2 boxes of popcorn sold, 5 fewer boxes of pretzels need to be sold to earn $500.
- C. For every increase of 5 boxes of popcorn sold, 2 more boxes of pretzels need to be sold to earn $500.
- D. For every increase of 5 boxes of popcorn sold, 2 fewer boxes of pretzels need to be sold to earn $500.