

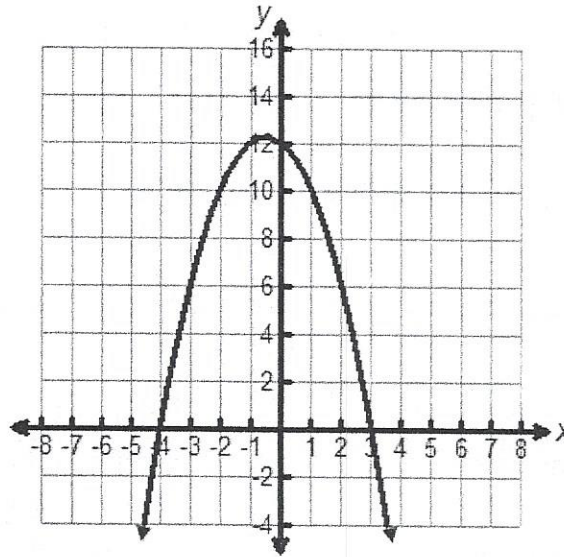
Name Gonzalez

Date 2-14-19 Pd _____

Wk 6, Unit 8, Quadratic Functions

Must Show Work to Get Credit

1 A quadratic function is shown below.



Which equation can be used to represent the quadratic function?

A $f(x) = x^2 + x - 12$

B $f(x) = -x^2 + x + 12$

C $f(x) = -x^2 - x + 12$ ← $a = -1 \Rightarrow$ opens Down
 $c = 12 \Rightarrow$ vertical shift Up

D $f(x) = x^2 - x - 12$

2 When a contractor paints a square surface that has a side length of x feet, he needs to know the area of the surface in order to buy the correct amount of paint. Since the contractor always adds 25 square feet to the area, he buys extra paint. Which function can be used to find the total area in square feet, $A(x)$, that the contractor will use to determine how much paint he needs to buy?

F $A(x) = 25x^2$

G $A(x) = (25 + x)^2$

H $A(x) = (25x)^2$

J $A(x) = x^2 + 25$

$A = \text{Length}$
 $A = (x)(x)$
 $A = x^2$
 Adds 25 $\Rightarrow A = x^2 + 25$

3 Which statement about $f(x) = 2x^2 - 3x - 5$ true?

- A The zeros are $-\frac{5}{2}$ and -1 , because $f(x) = (x + 1)(2x + 5)$.
- B The zeros are $-\frac{5}{2}$ and 1 , because $f(x) = (x - 1)(2x + 5)$.
- C** The zeros are -1 and $\frac{5}{2}$, because $f(x) = (x + 1)(2x - 5)$.
- D The zeros are 1 and $\frac{5}{2}$, because $f(x) = (x - 1)(2x - 5)$.

Graph
Eqn
True
zeros

4 The table below shows the x and y values of a quadratic equation. According to this, which of the following are most likely to be the factors for this equation?

x	0	2	4	6	8
y	8	0	0	8	24

According to this, which of the following are most likely to be factors for this equation?

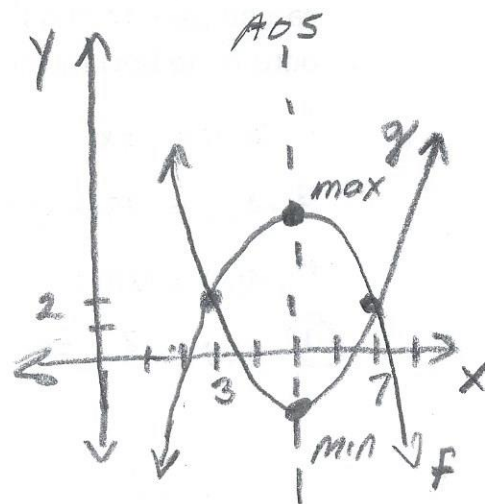
- F $(x - 0)(x - 8)$
- G** $(x - 2)(x - 4)$
- H $(x - 2)(x - 8)$
- J $(x - 2)(x - 4)(x - 8)$

Factors of Quadratic
Equal ϕ , $y = \phi$
(x-2) (x-4)
(2-2) (4-4)
 ϕ ϕ

5 Points $(3, 2)$ and $(7, 2)$ are on the graphs of both quadratic functions f and g . The graph of f opens downward, and the graph of g opens upward. Which of these statements are true?

- T** I. The graphs of f and g have the same axis of symmetry.
- F** II. The graphs of f and g have the same x -intercepts.
- T** III. The graph of f has a maximum point, and the graph of g has a minimum point.
- F** IV. The graph of f is the result of a reflection of the graph of g across the x -axis.

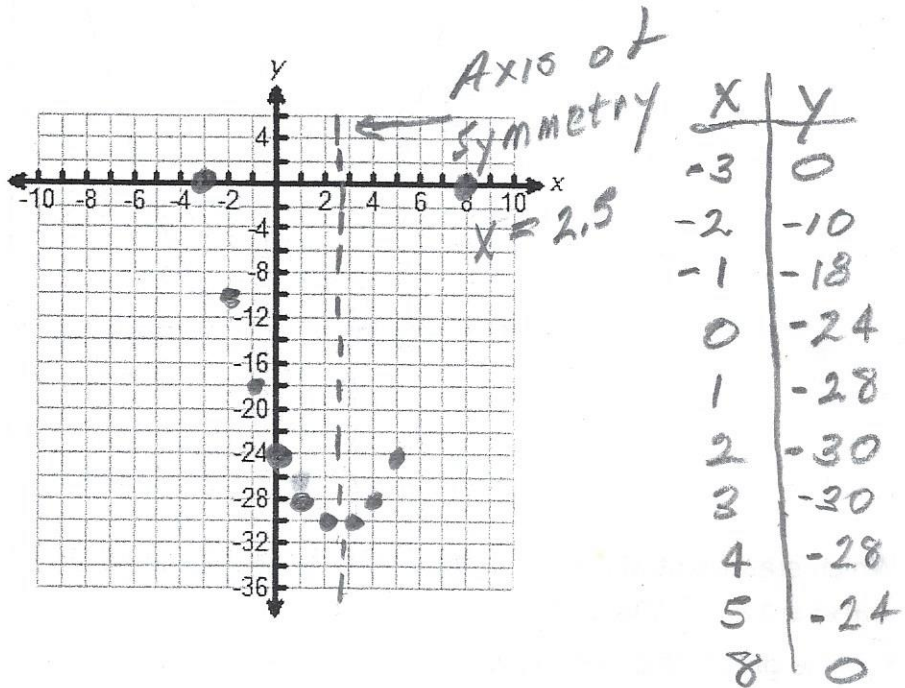
- A I only
- B II only
- C II and IV
- D** I and III



G

6 A quadratic function and a blank grid are given below.

$$f(x) = x^2 - 5x - 24$$



Using a graph of the function, determine which statement is NOT a true description of this quadratic function.

- T F The graph is symmetric across the line $x = 2.5$.
- T G The zeros of the function are $(-3, 0)$ and $(8, 0)$.
- F **H** The vertex is $(2.5, -25)$.
- T J The y-intercept is $(0, -24)$.

7 Quadratic functions g and k are shown below.

$$g(x) = 5x^2 - 12$$

$$k(x) = 5x^2 + c$$

↙ c
 ← Vertical Shift Up
 Increase by 9

For what value of c will the graph of k be 9 units above the graph of g ?

Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

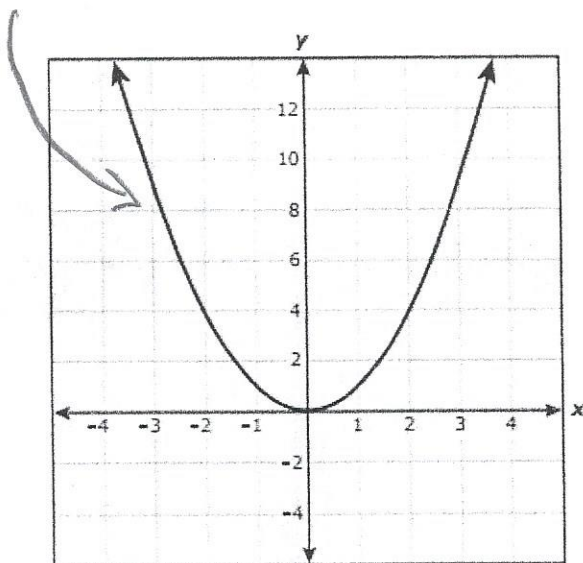
$$g(x) \rightarrow c = -12$$

$$\uparrow$$

Incr by 9

$$-12 + 9 = \underline{\underline{-3}}$$

8 The graph of $f(x) = x^2$ is shown on the grid.



Which statement about the relationship between the graph of f and the graph of $g(x) = 7x^2$ is true?

- F The graph of g is narrower than the graph of f .
- G The graph of g is wider than the graph of f .
- H The graph of g is 7 units below the graph of f .
- J The graph of g is 7 units above the graph of f .

$$f(x) = x^2 \quad a = 1$$

$$g(x) = 7x^2 \quad a = 7$$

Inc in $a \Rightarrow$ width narrower

- 9 The graph of the parent function $f(x) = x^2$ undergoes the transformations shown below.

$\leftarrow a=1, c=\phi$
 $-f(x) + 5$ $\leftarrow f(x)$ is neg \rightarrow Down
 $\leftarrow c$ incr by 5 \rightarrow Shift Up

Which statements best describe all of the effects on the graph of $f(x) = x^2$, including the effects on the x -intercept and y -intercepts?

- A The graph of the parent function is shifted 5 units up. The intercepts are not changed.
- B The graph of the parent function is reflected over the x -axis making it open downward and is vertically shifted 5 units down. The x -intercept shifts right to $(5, 0)$. The y -intercept shifts down to $(0, -5)$.
- C The graph of the parent function is horizontally shifted 5 units right. The x -intercept shifts right to $(5, 0)$. The y -intercept is not changed.
- D** The graph of the parent function is reflected over the x -axis making it open downward and is vertically shifted 5 units up. The x -intercept shifts to $(-\sqrt{5}, 0)$ and $(\sqrt{5}, 0)$. The y -intercept shifts up to $(0, 5)$.

- 10 Which statement about the relationship between the graph of the quadratic parent function, $f(x) = x^2$, and the function, $g(x) = x^2 - 3.5$, is true?

- F The graph of $g(x)$ is narrower than the graph of $f(x)$.
- G The graph of $g(x)$ is wider than the graph of $f(x)$.
- H** The graph of $g(x)$ is 3.5 units below the graph of $f(x)$.
- J The graph of $g(x)$ is 3.5 units above the graph of $f(x)$.

$f(x) = x^2$
 $a=1, c=\phi$
 $g(x) = x^2 - 3.5$
 $a=1, c=-3.5$

- 11 Quadratic functions m and n are graphed on the same coordinate grid. The vertex of the graph of n is 5 units above the vertex of the graph of m . Which pair of functions could have been used to create the graphs of m and n ?

- A $m(x) = x$ and $n(x) = x + 5$
- B $m(x) = x^2$ and $n(x) = x^2 - 5$
- C $m(x) = x^2$ and $n(x) = 5x^2$
- D** $m(x) = x^2$ and $n(x) = x^2 + 5$

graph n is above by 5
 \Rightarrow c value is larger by 5

