

For the following Quadratic Equations Find the following Then Graph:

- Axis of Symmetry
- Vertex
- If it Opens Up or Down
- Is it a Max or Min
- What is the Domain
- What is the Range

1. $y = x^2 + 4x + 5$

2. $y = x^2 - 6x + 7$

3. $y = x^2 + 8x + 16$

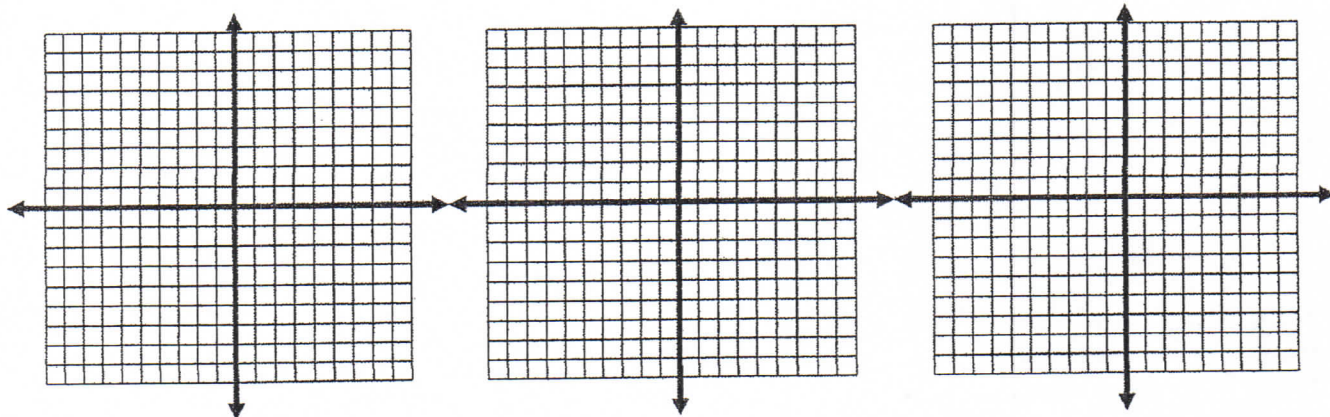
4. $y = -x^2 - 4x - 1$

5. $y = 2x^2 - 4x - 4$

6. $y = -2x^2 + 20x - 56$

7. A Superhero is trying to leap over a tall building. The function $f(x) = -16x^2 + 200x$ gives the superhero's height in feet as a function of time. The building is 612 high. Will the superhero make it over the building? EXPLAIN!!!!!!!

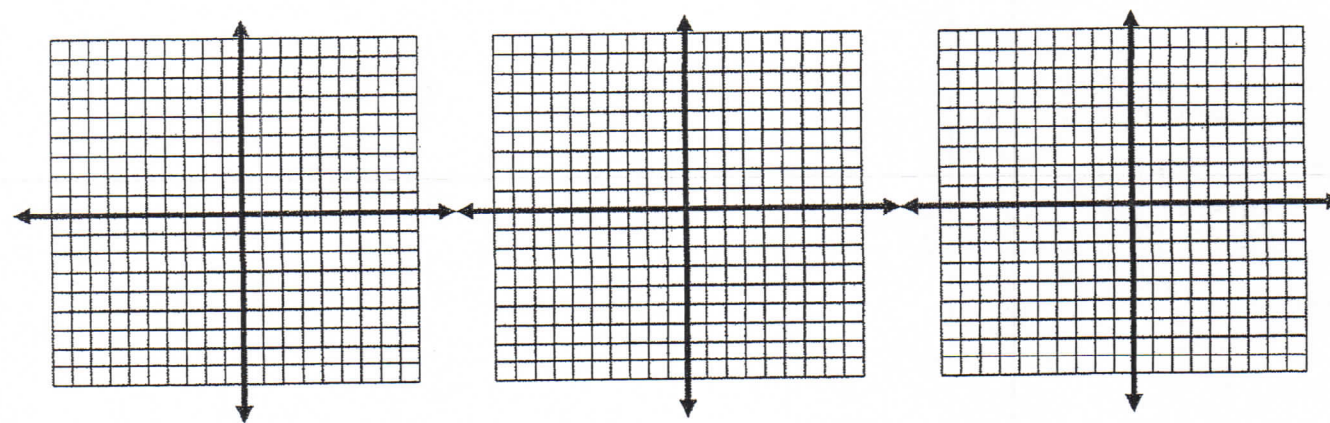
Name: _____



Axis of Symmetry: _____
Vertex: _____
Zeros: _____
Opens Up or Down: _____
Max or Min: _____
Domain: _____
Range: _____

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Vertex: _____
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Opens Up or Down: _____
Max or Min: _____
Domain: _____
Range: _____

For the following Quadratic Equations Find the following Then Graph:

- a. Axis of Symmetry $x = \frac{-b}{2a}$
- b. Vertex $(\frac{-b}{2a}, y)$
- c. If it Opens Up or Down if a is positive \rightarrow up ; if a is negative \rightarrow down
- d. Is it a Max or Min a is pos \rightarrow min ; a is neg. \rightarrow max
- e. What is the Domain $(-\infty, +\infty)$
- f. What is the Range
 a is pos $\rightarrow y \geq$ (y value of vertex); a is neg $\rightarrow y \leq$ (y value of vertex)

1. $y = x^2 + 4x + 5$

a. $x = \frac{-4}{2} = \boxed{-2}$

b. $y = (-2)^2 + 4(-2) + 5$
 $y = 1 \rightarrow$ vertex $\boxed{(-2, 1)}$

2. $y = x^2 - 6x + 7$

a. $x = \frac{6}{2} = \boxed{3}$

b. $y = (3)^2 - 6(3) + 7$
 $y = -2 \rightarrow$ vertex $\boxed{(3, -2)}$

3. $y = x^2 + 8x + 16$

a. $x = \frac{-8}{2} = -4$

b. $y = (-4)^2 + 8(-4) + 16$
 $y = 0 \rightarrow$ vertex $\boxed{(-4, 0)}$

4. $y = -x^2 - 4x - 1$

a. $x = \frac{4}{-2} = \boxed{-2}$

b. $y = -(-2)^2 - 4(-2) - 1$
 $y = 3 \rightarrow$ vertex $\boxed{(-2, 3)}$

5. $y = 2x^2 - 4x - 4$

a. $x = \frac{4}{4} = \boxed{1}$

b. $y = 2(1)^2 - 4(1) - 4$
 $y = -6 \rightarrow$ vertex $\boxed{(1, -6)}$

6. $y = -2x^2 + 20x - 56$

a. $x = \frac{-20}{-4} = \boxed{5}$

b. $y = -2(5)^2 + 20(5) - 56$
 $y = -6 \rightarrow$ vertex $\boxed{(5, -6)}$

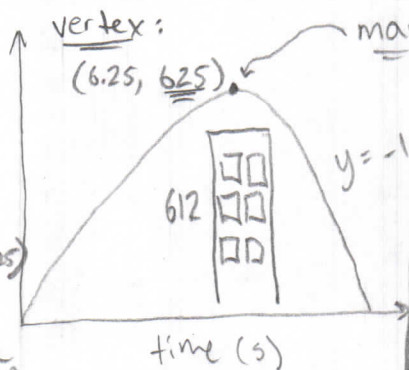
7. A Superhero is trying to leap over a tall building. The function $f(x) = -16x^2 + 200x$ gives the superhero's height in feet as a function of time. The building is 612 high. Will the superhero make it over the building? EXPLAIN!!!!!!

$a = -16$ $x = \frac{-b}{2a}$
 $b = 200$ $x = \frac{-200}{-32}$
 $c = 0$

This tells us $x = 6.25$

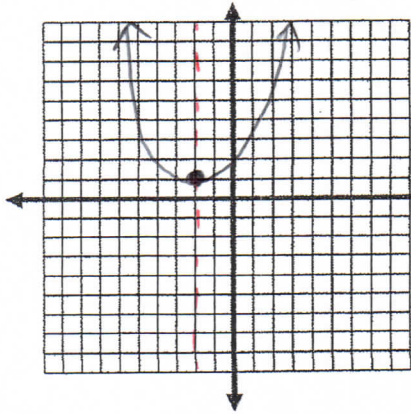
how many seconds it takes our superhero to reach his/her maximum height

$y = -16(6.25)^2 + 200(6.25)$
 $y = 625$ this tells us how high the superhero can jump

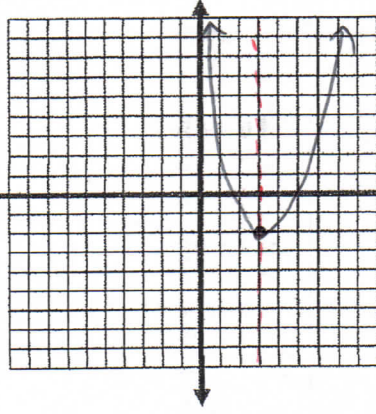


Yes, the superhero will make it over the building because the maximum height of his/her jump is greater than the height of the 612ft building.

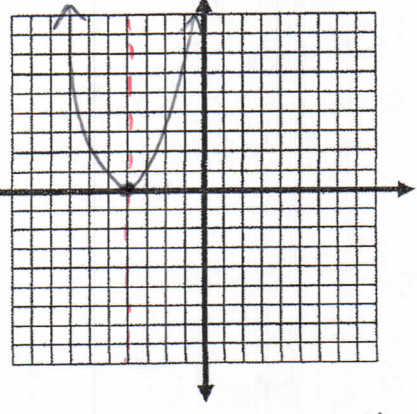
Name: Notes 9.1 : 9.2 Key



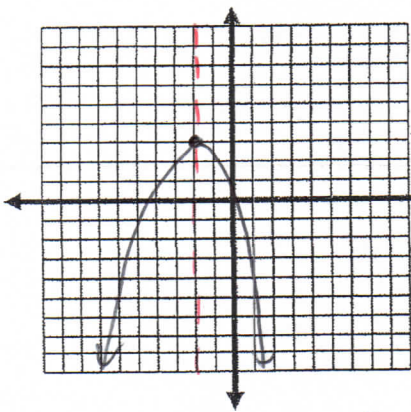
Axis of Symmetry: $x = -2$
Vertex: $(-2, 1)$
Zeros: _____
Opens Up or Down: Up
Max or Min: _____
Domain: _____
Range: _____



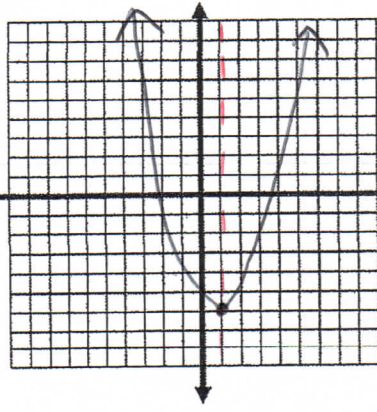
Axis of Symmetry: $x = 3$
Vertex: $(3, -2)$
Zeros: _____
Opens Up or Down: up
Max or Min: _____
Domain: _____
Range: _____



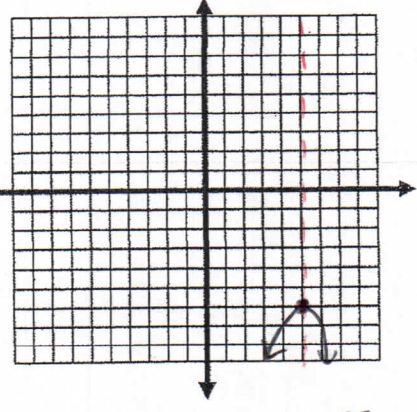
Axis of Symmetry: $x = -4$
Vertex: $(-4, 0)$
Zeros: _____
Opens Up or Down: up
Max or Min: _____
Domain: _____
Range: _____



Axis of Symmetry: $x = -2$
Vertex: $(-2, 3)$
Zeros: _____
Opens Up or Down: Down
Max or Min: _____
Domain: _____
Range: _____



Axis of Symmetry: $x = 1$
Vertex: $(1, -6)$
Zeros: _____
Opens Up or Down: up
Max or Min: _____
Domain: _____
Range: _____



Axis of Symmetry: $x = 5$
Vertex: $(5, -6)$
Zeros: _____
Opens Up or Down: Down
Max or Min: _____
Domain: _____
Range: _____