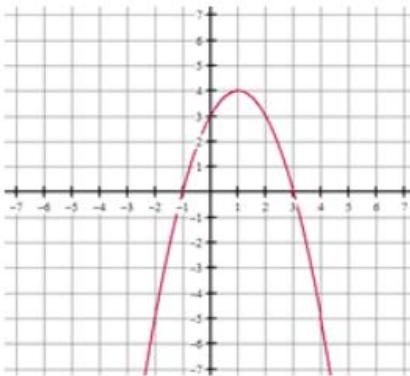


## 12.2 Solve Quadratics by Graphing

## PRACTICE

**Find the coordinates of the zeros and vertex using the graph of the function.**

1.

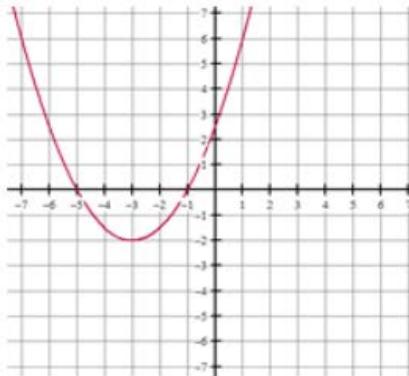


Zeros:  $x = -1, 3$

Vertex:  $(1, 4)$

Is the vertex a maximum or minimum?

2.

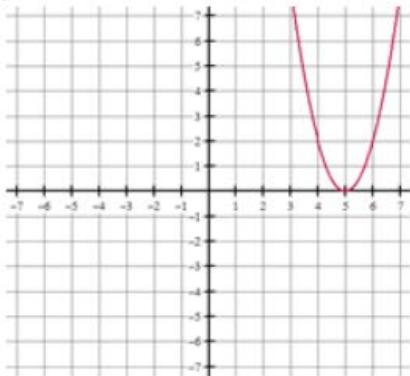


Zeros:  $x = -5, -1$

Vertex:  $(-3, -2)$

Is the vertex a maximum or minimum?

3.



Zeros:  $x = 5$

Vertex:  $(5, 0)$

Is the vertex a maximum or minimum?

**Find the roots and vertex of the function by graphing. Sketch a rough graph. Round to the nearest hundredth.**

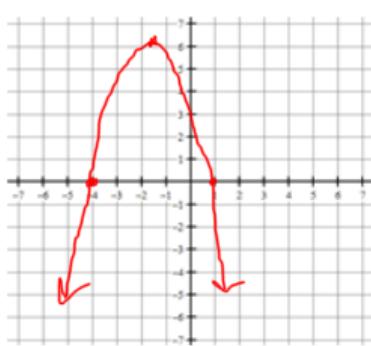
4.  $f(x) = -x^2 - 3x + 4$

Roots:

$x = -4, 1$

Vertex:

$(-1.5, 6.25)$



Is the vertex a maximum or minimum?

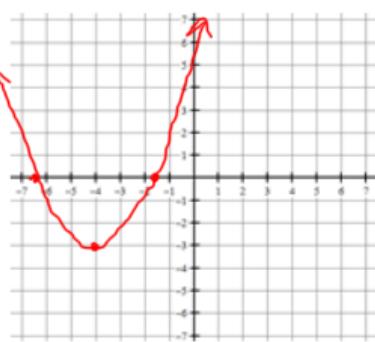
5.  $f(x) = \frac{1}{2}x^2 + 4x + 5$

Roots:

$x = -6.45, -1.55$

Vertex:

$(-4, -3)$



Is the vertex a maximum or minimum?

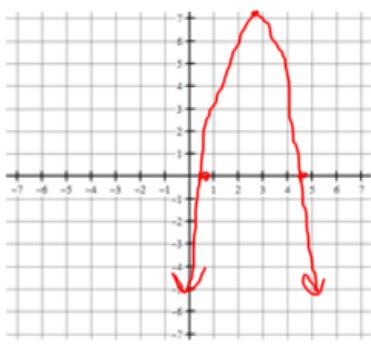
6.  $f(x) = -2x^2 + 11x - 8$

Roots:

$x = 0.86, 4.64$

Vertex:

$(2.75, 7.125)$



Is the vertex a maximum or minimum?

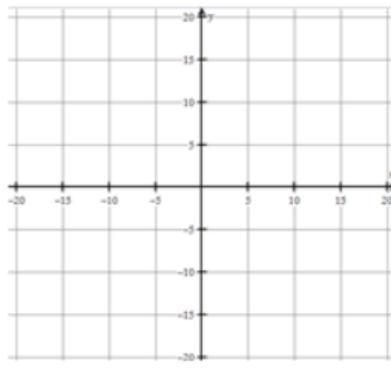
7.  $f(x) = 0.2x^2 + 3x - 5$

Roots:

$x = -16.51, 1.51$

Vertex:

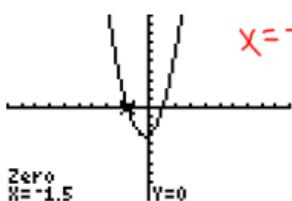
$(-7.5, -16.25)$



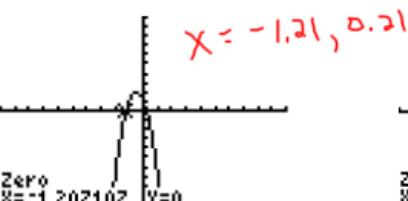
Is the vertex a maximum or minimum?

Solve the equation by graphing. Round to the nearest hundredth.

8.  $2x^2 + x - 3 = 0$



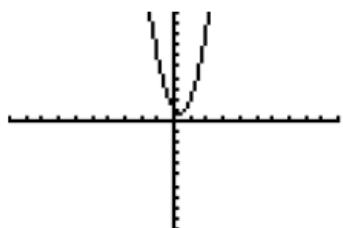
9.  $-4x^2 - 4x + 1 = 0$



10.  $3x^2 + 1 = 2x$

$$\begin{array}{r} -2x \\ \hline -3x^2 - 2x + 1 = 0 \end{array}$$

**No SOLUTION**



11.  $\frac{1}{2}x^2 = 3 + 2x$

$$0 = -\frac{1}{2}x^2 + 2x + 3$$

$$-\frac{1}{2}x^2 + 2x + 3 = 0$$

$$x = -1.16, 5.16$$

Zero X=-1.162278 Y=0

Zero X=5.1622777 Y=0

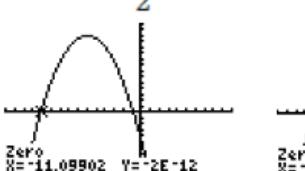
Graph to answer the following. Round to the nearest hundredth.

12. Find the zeros of

$$x = -11.1, -0.9$$

$$f(x) = -\frac{1}{2}x^2 - 6x - 5$$

WINDOW  
Xmin=-15  
Xmax=10  
Xscl=1  
Ymin=-10  
Ymax=15  
Yscl=1  
Xres=1

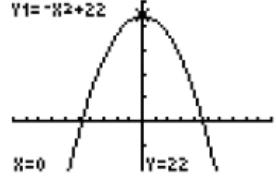


13. What is the maximum point for

$$y = -x^2 + 22$$

WINDOW  
Xmin=-10  
Xmax=10  
Xscl=1  
Ymin=-10  
Ymax=25  
Yscl=5  
Xres=1

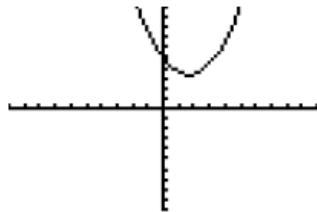
$$(0, 22)$$



14. Explain why there is no solution to the following:

$$f(x) = 0.6x^2 - 2x + 5$$

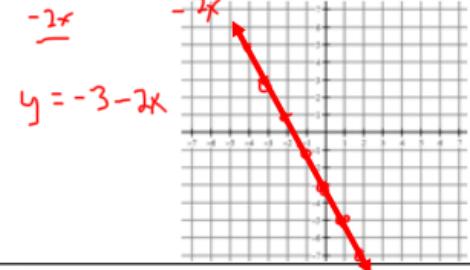
Doesn't cross the x-axis



### SKILLZ REVIEW

#### GRAPH

1.  $2x + y = -3$



#### FACTOR

2.  $x^2 + 2x - 80$

$$(x+10)(x-8)$$

~~$$\begin{array}{r} 2 \\ \times 10 \\ \hline 20 \\ -80 \\ \hline -60 \end{array}$$~~

#### RADICALS

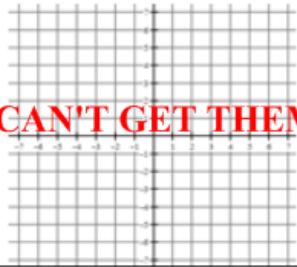
3. Simplify

$$\sqrt{75}$$

$$\sqrt{25 \cdot 3}$$

$$5\sqrt{3}$$

4.  $x - 2y = 10$



5.  $2x^2 - 5x - 3$

TRY THESE!

6. Simplify

$$\frac{2}{\sqrt{2}}$$

IF YOU CAN'T GET THEM, WATCH THE SKILLZ REVIEW VIDEO FOR HELP!