

Name: _____ Algebra 10 Unit 8 Lesson 6

The Zeroes of a Quadratic

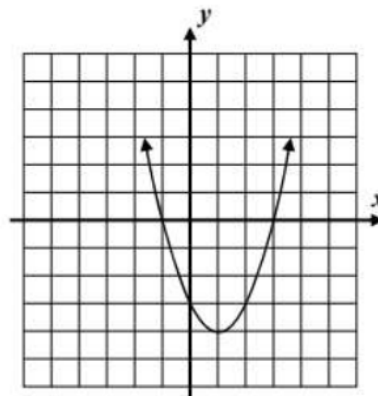
DO NOW ~ Friday 1/17

Change the following quadratic equation from standard form to vertex form by completing the square.

$$y = x^2 + 6x - 16$$



Classwork

Exercise #1: Consider the quadratic function $y = x^2 - 2x - 3$. It's graph is shown below.(a) What are the zeroes of the function? Write their x -values and circle them on the graph.(b) Verify that the positive zero is correct by showing that $y = 0$.(c) Factor the expression $x^2 - 2x - 3$. How do these factors compare to the zeroes?(d) Based on (c), determine where the zeroes of $y = x^2 + 3x - 10$ are algebraically. Verify using a table.

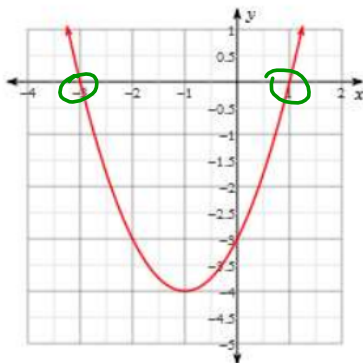
DO NOW ~ Tuesday 1/21

Identify the zeroes (solutions) of the following quadratic equation.

$$(-3, 0)$$

$$(1, 0)$$

1) $y = x^2 + 2x - 3$



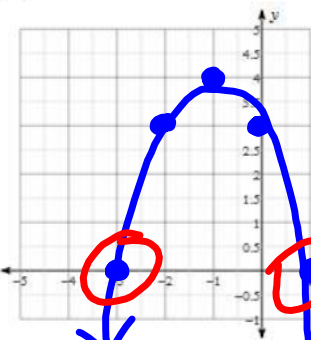
$$x = -3, 1$$



Classwork

Graph the quadratic function using the TABLE & LABEL method. Then, identify the ZEROES (solutions) of the equation.

1) $y = -x^2 - 2x + 3$

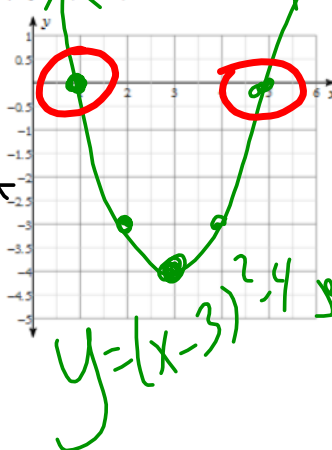


$$y = -x^2 - 2x + 3$$

$$\text{Zeroes: } x = -3, 1$$

x	y
-3	0
-2	3
-1	4
0	3
1	0

2) $y = (x-3)^2 - 4$

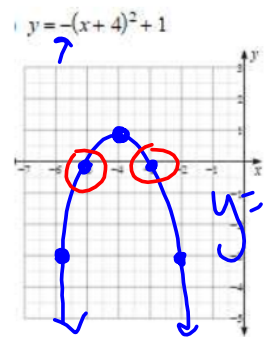


$$\text{Zeroes: } x = 1, 5$$

x	y
1	0
2	-3
3	-4
4	-3
5	0

DO NOW ~ Wednesday 1/22

Identify the zeroes (solutions) of the following quadratic equation.

$y = -(x+4)^2 + 1$


$y = -(x+4)^2 + 1$

x	y
-6	-3
-5	0
-4	1
-3	0
-2	-3

Zeroes: $x = \{-5, -3\}$

← vertex



Classwork

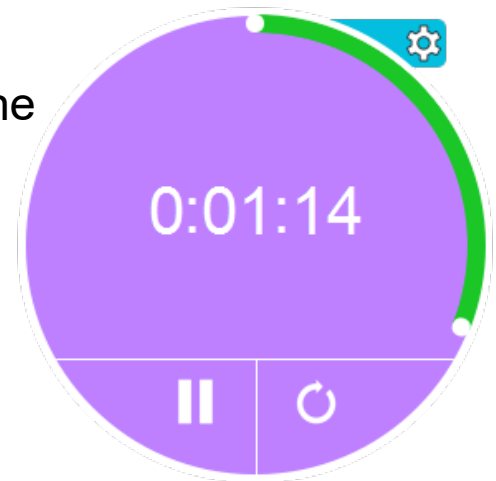
$$y = 18/x$$

Now let's look into another way of finding the solutions to a quadratic function...**FACTORING!**

$n^2 + 2n - 8 = 0$ $(n+4)(n-2)$ $n+4=0$ $-4 \mid -4$ $n = -4$ $n-2=0$ $+2 \mid +2$ $n = 2$ $n = \{-4, 2\}$ $\begin{matrix} 2, 4 \\ +, 8 \end{matrix}$ 	$a^2 + 6a - 16 = 0$ $(a+8)(a-2)$ $a+8=0$ $-8 \mid -8$ $a = -8$ $a-2=0$ $+2 \mid +2$ $a = 2$ $\begin{matrix} 1, 16 \\ 2, 8 \\ -4, 4 \end{matrix}$	$p^2 - 9p + 18 = 0$ $(p-6)(p-3)$ $p-6=0$ $+6 \mid +6$ $p = 6$ $p-3=0$ $+3 \mid +3$ $p = 3$ $\begin{matrix} +, 18 \\ 2, 9 \end{matrix}$ $\begin{matrix} 3, 6 \end{matrix}$
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To earn your full participation point for the Do Now be sure to have completed all of the following by the time is up:

- 1) Be in your seat
- 2) Take out your calculator or grab one
- 3) Have last night's homework out
- 4) Complete the do now



DO NOW ~ Thursday 1/23

Solve the following equation by factoring.

$$n^2 - 5n + 6 = 0$$

$$(n - 2)(n - 3)$$

$$\begin{array}{r} n-2=0 \\ +2 \quad +2 \\ \hline n=2 \end{array}$$

STOP STOP STOP

$$\begin{array}{r} n-3=0 \\ +3 \quad +3 \\ \hline n=3 \end{array}$$

$$n=3$$

$$\begin{array}{r} +6 \\ 2, 3 \end{array}$$

Classwork

Solve each of the following equations by factoring.

$$n^2 + 10n + 25 = 0$$

$$(n + 5)(n + 5)$$

$$\begin{array}{r} n+5=0 \\ -5 \quad -5 \\ \hline n=-5 \end{array}$$

$$n=-5$$

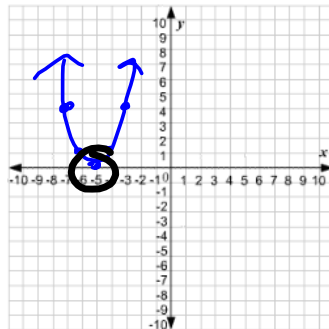
$$\begin{array}{r} n+5=0 \\ -5 \quad -5 \\ \hline n=-5 \end{array}$$

$$n=-5$$

$$\begin{array}{r} 5, 5 \\ +25 \end{array}$$

Table and label the parabola and circle the zeroes.

$$y = n^2 + 10n + 25$$



x	y
~~8~~	~~8~~
~~7~~	~~4~~
~~6~~	~~1~~
~~5~~	~~0~~
~~4~~	~~1~~
~~3~~	~~4~~

$$-5 \quad 0$$

$$x^2 - 4x - 5 = 0$$

$$(x + 1)(x - 5)$$

$$\begin{array}{r} x+1=0 \\ -1 \quad -1 \\ \hline x=-1 \end{array}$$

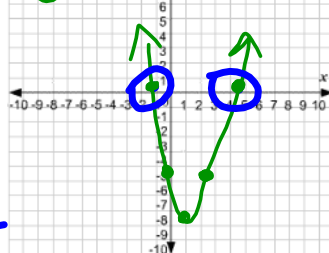
$$x=-1$$

$$\begin{array}{r} x-5=0 \\ +5 \quad +5 \\ \hline x=5 \end{array}$$

$$x=5$$

$$\begin{array}{r} 1, 5 \\ -5 \end{array}$$

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



x	y
-1	0
0	-5
1	-8
5	0

Mrs. Ferreri's Station ~ Factoring to find the Zeroes (Solutions)

Solve each of the following equations by factoring.

$x^2 - 4x - 5 = 0$	$m^2 + 6m + 8 = 0$
$x^2 - 11x + 30 = 0$	$x^2 + 7x + 10 = 0$
$n^2 = -2 + 3n$	$n^2 = -4n$
$v^2 - 8v = 0$	$x^2 - 16 = 0$
	<i>Continue onto next page.</i>

$a^2 - 3a - 28 = 0$	$x^2 - 9x + 18 = 0$
$p^2 - 13p + 40 = 0$	$k^2 + 8k + 15 = 0$
$n^2 - 15n + 63 = 7$	$m^2 - 10m + 15 = -6$
$5x^2 - 20x = 0$	$2p^2 + 12p = 0$

Computer Station ~ Delta Math

Complete the "Setting Quadratics Equal to 0" assignment. ***This will be part of your quarter two grade.***

Use this space below to show your work:

Mrs. Kennedy's Station ~ Standard Form to Vertex Form**Complete the square then identify the vertex.**

$y = x^2 + 2x + 5$ Vertex: _____	$y = x^2 + 2x$ Vertex: _____
$y = x^2 - 4x + 8$ Vertex: _____	$y = x^2 - 2x - 3$ Vertex: _____
$y = x^2 + 6x - 11$ Vertex: _____	$y = x^2 + 8x + 18$ Vertex: _____ <i>Continue onto next page.</i>

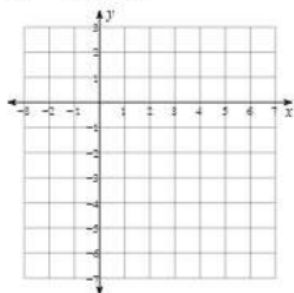
Complete the square.

$y = x^2 + 6x + 11$ Vertex: _____	$y = x^2 + 4x + 8$ Vertex: _____
$y = x^2 - 2x + 5$ Vertex: _____	$y = x^2 + 6x + 7$ Vertex: _____
$y = x^2 - 4x$ Vertex: _____	$y = x^2 + 4x + 5$ Vertex: _____

Independent Station ~ Identify the Zeroes

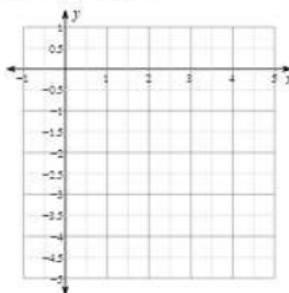
Graph the quadratic function using the TABLE & LABEL method. Then, identify the ZEROES (solutions) of the equation.

1) $y = -2x^2 + 4x$



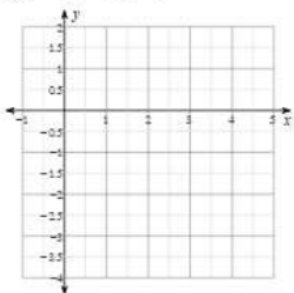
Zeroes: _____

2) $y = x^2 - 6x + 5$



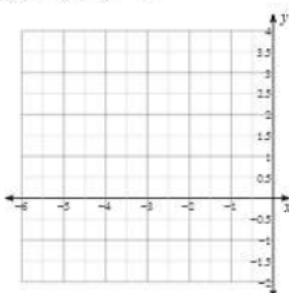
Zeroes: _____

3) $y = -x^2 + 6x - 8$



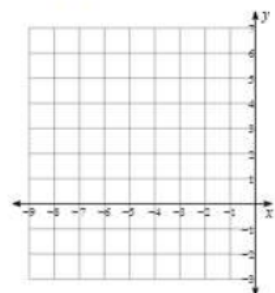
Zeroes: _____

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



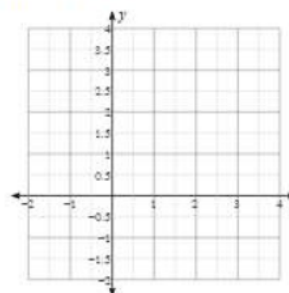
Zeroes: _____

5) $y = 2(x + 4)^2 - 2$



Zeroes: _____

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



Zeroes: _____

Continue onto next page.

Homework ~ Thursday 1/23

Use the information provided to write the vertex form equation of each parabola and identify the vertex.

$$y = x^2 + 6x + 12$$

Vertex: _____

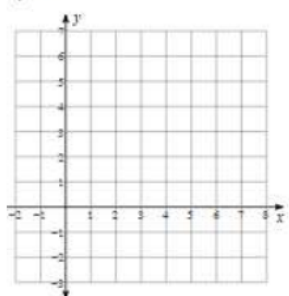
Use the information provided to write the vertex form equation of each parabola and identify the vertex.

$$y = x^2 + 4x - 12$$

Vertex: _____

Graph the quadratic function using the TABLE & LABEL method. Then, identify the ZEROES (solutions) of the equation.

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



Zeros: _____