

Handout Graph Paper

Home: SS

Problems on Last Slide

Date: _____

<http://www.mathvizza.com>Bell WorkDirections: Please expand.

1. $(x+1)^2$

2. $(x-1)^2$

3. $(3x+5)^2$

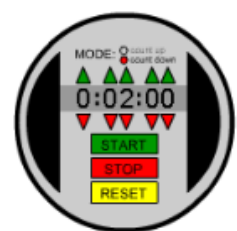
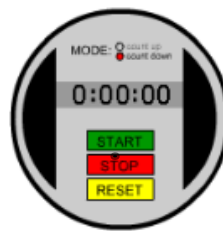
4. $(5x+7)^2$

5. $(x+y)^2$

6. $(3x+2y)^2$

7. $(x^3+1)^2$

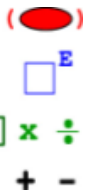
8. $(x+1)^2$



Objectives

1. The students will convert from vertex to standard form.
2. The students will find the vertex of a quadratic function that is written in vertex form.
3. The students will find the vertex of a quadratic function that is in standard form.
4. The students will graph quadratic functions in vertex and standard form.

Please convert the following to standard form.



$$y = ax^2 + bx + c$$

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

$$g(x) = 3(x^2 - 8x + 16) + 3$$

$$g(x) = 3x^2 - 24x + 48 + 3$$

$$g(x) = 3x^2 - 24x + 51$$

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

$$y = -2(x^2 + 6x + 9) + 3$$

$$y = 2x^2 - 12x - 18 + 3$$

$$y = -2x^2 - 12x - 15$$

3. $f(x) = -(x+1)^2 = -(x^2 + 2x + 1)$
 $= -x^2 - 2x - 1$

$$f(x) = a\sqrt{x-h} + k$$

$$y = a(x-h)^2 + k$$

$$y = a(x-h)^3 + k$$

$$y = a|x-h| + k$$

$$y = a[x-h] + k$$

Vertex - highest/lowest pt. on a parabola

max/min - big/smallest y-value on a function

Vertex Form

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

$$y = a(x - h)^2 + k$$

Vertex

h, k

Standard Form

$$y = ax^2 + bx + c$$

Vertex

$$\left(-\frac{b}{2a}, f\left(-\frac{b}{2a} \right) \right)$$

Finding the Vertex with Standard Form

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

$$f(x) = -1.5x^2 - 3x + 1.5$$

$$x = -\frac{b}{2a}, f\left(\frac{-b}{2a}\right)$$

$$x = -\frac{(-3)}{2(-1.5)} = \frac{3}{-3} = -1$$

$$f(-1) = -1.5(-1)^2 - 3(-1) + 1.5$$

$$\textcircled{-1, 3} = \cancel{-1.5} + 3 + \cancel{1.5} = 3$$

$f(x)=(x+3)^2+2$

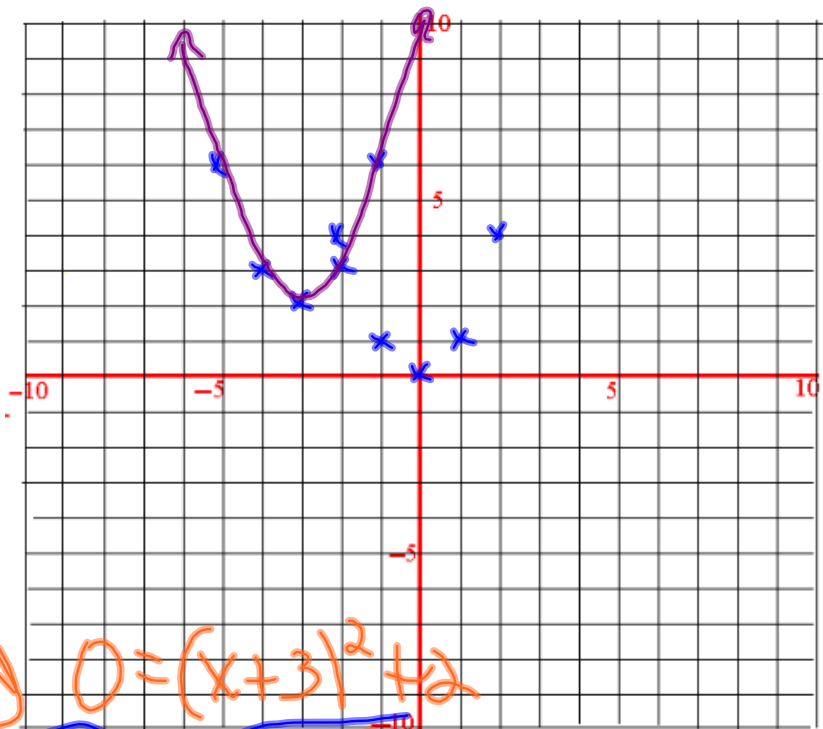
vertex

-3, 2

$y=x^2$

additional points

x	y



$0 = (x+3)^2 + 2$

~~± 1~~ $= (x+3)^2$

Directions: Please identify a, h & k then graph the following. *Graph and label $x=h$*

1. $f(x)=2(x-3)^2-5$

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

3. $f(x)=-(x+1)^2-5$

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

Directions: For the following, please

1. determine if the graph opens up or down
2. determine if the graph has a maximum or a minimum
3. compute the vertex using the formula
4. state the max or minimum
5. graph the function

1. $f(x)=2x^2-6x+1$

2. $y=-6x+x^2+3$

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

4. $g(x)=(2x+3)(x-5)$

5. $m(x)=3x(x+3)$

