Bell Ringer - Simplify

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2) $8\sqrt{153} \cdot \sqrt{196}$

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1) $\frac{1}{5}\sqrt{50}\cdot\sqrt{2}$

$\frac{1}{5}\cdot\sqrt{100}$

$\frac{1}{5}\cdot 10$

2

$\frac{1}{5}\cdot\sqrt{25}\cdot\sqrt{2}\cdot\sqrt{2}$

$\frac{1}{5}\cdot 5\cdot\sqrt{4}$

2) $8\sqrt{153}\cdot\sqrt{196}$

$8\cdot\sqrt{9}\cdot\sqrt{17}\cdot\sqrt{196}$

$8\cdot 3\cdot 14\cdot\sqrt{17}$

$336\sqrt{17}$

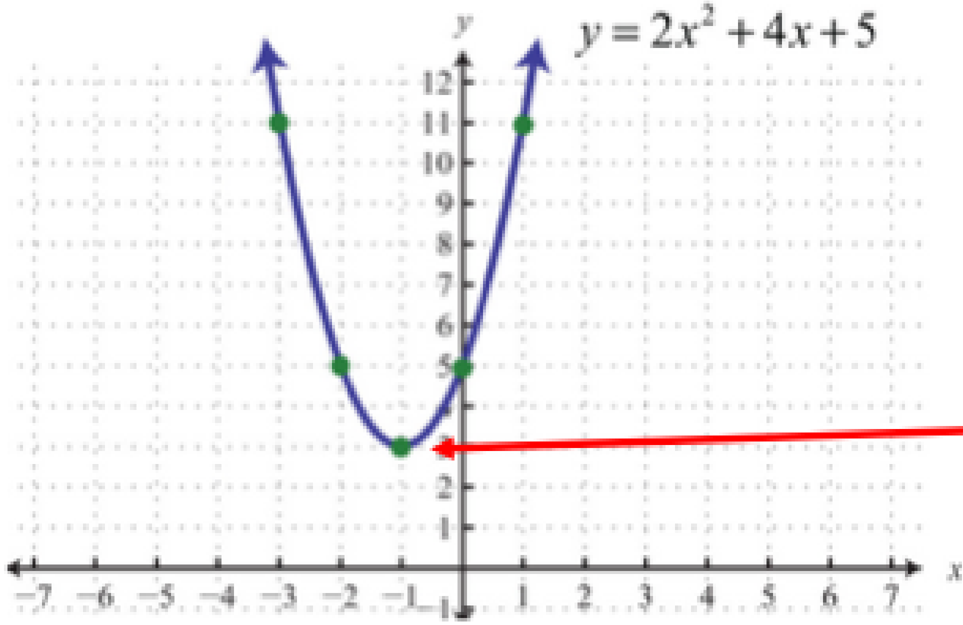
Quadratic Function

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

The graph of a quadratic function is a U-shaped curve called a parabola.

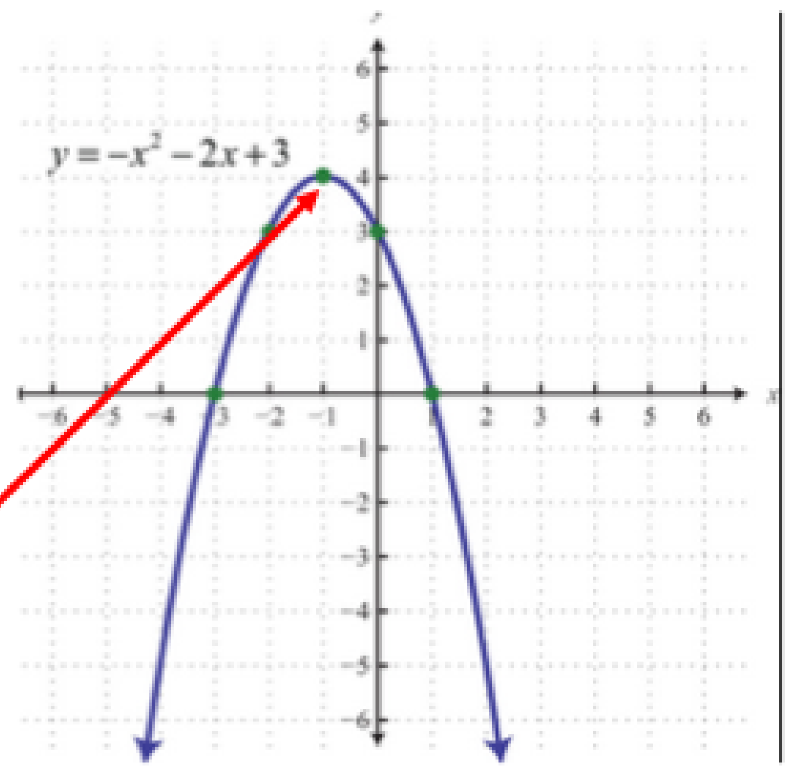
If the 'a' value is positive, the parabola opens upward and the vertex is called a minimum.

If the 'a' value is negative, the parabola opens downward and the vertex is called a maximum.



Example of the graph of a quadratic function with a positive 'a' value.

vertex (-1 , 3) minimum point



Example of the graph of a quadratic function with a negative 'a' value.

vertex (-1 , 4) maximum point

Finding the Vertex of the Parabola (x , y)

Formula for finding the x-coordinate

$$x = \frac{- b}{2a}$$

Finding the y-coordinate, substitute the x-coordinate into the quadratic function and solve for y. This is the y-coordinate.

Tell whether the function has a minimum or maximum vertex, then find the coordinates of the point.

(1, 4)

minimum

1. $y = 2x^2 + {}^-4x + 6$

$x = \frac{-b}{2a}$

$\frac{--4}{2(2)} = \frac{4}{4} = 1$

$y = 2(1)^2 - 4(1) + 6$

$= 2 - 4 + 6$

$= 4$

Tell whether the function has a minimum or maximum vertex, then find the coordinates of the point.

$(3, -1)$

maximum

2. $y = -x^2 + 6x - 10$

$$x = \frac{-b}{2a}$$

$$= \frac{-6}{-2}$$

$$= 3$$

$$y = -1(3)^2 + 6(3) - 10$$

$$= -9 + 18 - 10$$

$$= -1$$