

Before we begin, are there any questions from last day's work?

Today's Learning Goal(s):

By the end of the class, I will be able to:

- a) convert a quadratic relation from vertex form to standard form.
- b) use standard form: $y = ax^2 + bx + c$

Reminder: Quiz Tomorrow on Expanding Binomials

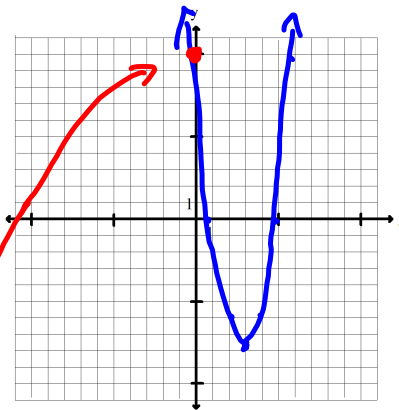
MBF 3CI 5.2 Change from Vertex Form [$y = a(x-h)^2 + k$]
to Standard Form [$y = ax^2 + bx + c$]

Date: NOV. 10 / 16

Ex 1. Given the equation $y = 2(x-3)^2 - 8$ (in vertex form),
a) sketch it on the grid provided.

vertex (3, -8) $\swarrow a=2$
opens up
Step Pattern

1	+	2
2	+	8
3	+	18



b) convert the equation to standard form.
 $y = ax^2 + bx + c$

$$\begin{aligned} y &= 2(x-3)^2 - 8 \\ &= 2(x-3)(x-3) - 8 \\ &= 2(x^2 - 3x - 3x + 9) - 8 \\ &= 2(x^2 - 6x + 9) - 8 \\ &= 2x^2 - 12x + 18 - 8 \\ &= 2x^2 - 12x + 10 \end{aligned}$$

$$a=2 \quad b=-12 \quad c=10$$

c) the value of "c" in standard form represents the y-intercept on the graph.

Ex 2. Given the equation $y = -(x+2)^2 + 7$ (in vertex form),

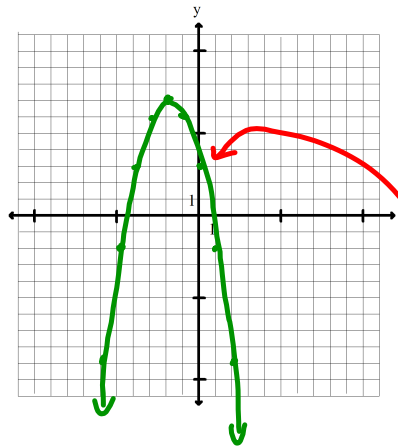
a) sketch it on the grid provided.

vertex $(-2, 7)$

opens down

Step Pattern

1	-1
2	-4
3	-9



b) convert the equation to standard form.

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

$$= -(x+2)^2 + 7$$

$$= -(x+2)(x+2) + 7$$

$$= -(x^2 + \underline{2x} + \underline{2x} + 4) + 7$$

$$= -(x^2 + 4x + 4) + 7$$

$$= -x^2 - 4x - 4 + 7$$

$$= -x^2 - 4x + 3$$

c) the value of "c" in standard form represents the y-intercept on the graph.

Summary

Given a quadratic relation in vertex form, $y = a(x-h)^2 + k$, the coordinates of the vertex are (h, k) .

Given a quadratic relation in standard form, $y = ax^2 + bx + c$, the y-intercept is 'c'.

The value of 'a' in both forms is the same.

Entertainment: pp. 245-247 #1a, 2e, 3d, 4c, 6, 7ab, 11

Challenge: #14

Quiz Tomorrow on Expanding Binomials

Sample Questions for Expand and Simplify Quiz:

$$\begin{aligned} & -4(2x-1) \\ & = -8x + 4 \end{aligned}$$

$$\begin{aligned} & (x+2)(x-3) \\ & = x^2 - 3x + 2x - 6 \\ & = x^2 - x - 6 \end{aligned}$$

$$\begin{aligned} & (5x-4)(x-2) \\ & = 5x^2 - 10x - 4x + 8 \\ & = 5x^2 - 14x + 8 \end{aligned}$$