

Forms of the Quadratic Function

Vertex Form

- stretch factor: "a"
- vertex: (h, k)

Properties

- max/min y value
- axis of symmetry
- domain/range

Standard Form

- stretch factor: "a"
- y intercept: (0, c)

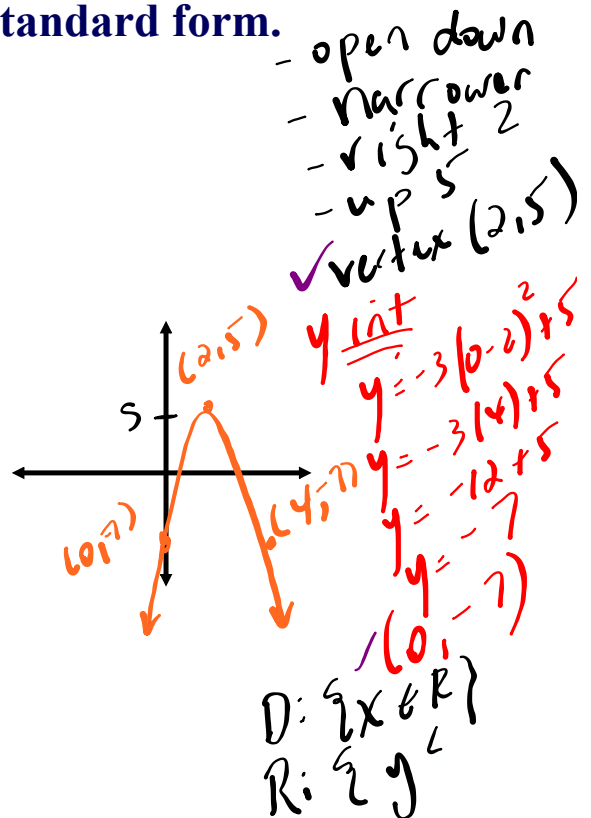
Example 1: Change from vertex to standard form.

Vertex Form



Expand

Standard



HOMWORK...

Worksheet - Properties of Quadratics.docx

①

$$y = \frac{3}{4}(x-2)^2 + 6$$

$$y = \frac{3}{4}(x^2 - 4x + 4) + 6$$

$$y = \frac{3}{4}x^2 - 3x + 3 + 6$$

$$y = \frac{3}{4}x^2 - 3x + 9 \rightarrow \text{y int } (0, 9)$$

Vertex
↓
Standard

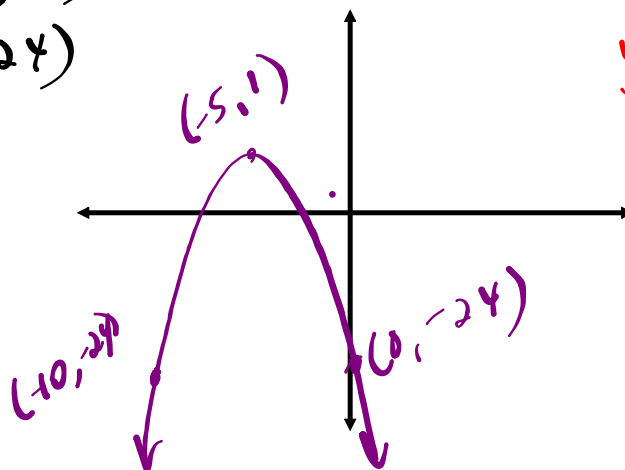
Sketches/Graphs of a Quadratic

OPTION #2 - Axis of Symmetry (vertex, y-intercept & its reflection)

ex:

① vertex $(-5, 1)$

② y-int $(0, -24)$



Standard

$$y = -(x^2 + 10x + 25) + 1$$

$$y = -x^2 - 10x - 25 + 1$$

$$y = -x^2 - 10x - \underline{\underline{24}}$$

EXAMPLE 1: Determine ALL properties for the given quadratic...

Vertex Form	$y = -2(x - 1)^2 + 3$
Direction of Opening	Down
Stretch Factor	2 (narrower)
Vertex	(1, 3)
y - intercept	(0, 1)
Domain	$\{x \in \mathbb{R}\}$
Range	$\{y \leq 3\}$
Max or Min y - value	Max y-value at 3
Axis of Symmetry	$x = 1$
Sketch (label ALL key Points)	

y-int
 $y = -2(0) + 3$
 $y = 1$

Attachments

Worksheet - Properties of Quadratics.docx