

HOMEWORK ???

Worksheet - Standard to Vertex (a = 1).pdf

Do even #'s

8

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

$$y = 2(x^2 + 2x)$$

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

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

$a=2$
open up
narrower
y-int
(0,0)

vertex
(-1, -2)

Examples: $S \rightarrow V$: Complete the square with " $a \neq 1$ ".

#1. $y = 4x^2 - 24x$ $y\text{-int}(0,0)$

$$y = 4(x^2 - 6x)$$

$$y = 4(x^2 - 6x + 9) - 9(4)$$

$$y = 4(x - 3)^2 - 36$$

$\text{vertex}(3, -36)$

#2. $y = -3x^2 + 12x + 10$ $y\text{-int}(0,10)$

$$y = -3(x^2 - 4x) + 10$$

$$y = -3(x^2 - 4x + 4) - 4(-3) + 10$$

$$y = -3(x - 2)^2 + 22$$

$\text{vertex}(2, 22)$

$a = -3$
 open down stretch factor (narrow)

#3. $y = -5x^2 - 15x + 9$ $y\text{-int}(0,9)$

$$y = -5(x^2 + 3x) + 9$$

$$y = -5(x^2 + 3x + \frac{9}{4}) - \frac{9(-5)}{4} + 9$$

$$y = -5(x + \frac{3}{2})^2 + \frac{45}{4} + \frac{9 \cdot 4}{4}$$

$$y = -5(x + \frac{3}{2})^2 + \frac{81}{4}$$

$\text{vertex}(-\frac{3}{2}, \frac{81}{4})$

$(\frac{3}{2})^2 = \frac{9}{4}$

What about having a fractional 'a' value???

#4. $y = \frac{3}{4}x^2 + 12x - 5$

$y = \frac{3}{4}(x^2 + 16x) - 5$

$y = \frac{3}{4}(x^2 + 16x + 64) - 64\left(\frac{3}{4}\right) - 5$

$y = \frac{3}{4}(x+8)^2 - 48 - 5$

$y = \frac{3}{4}(x+8)^2 - 53$

$D: \{x \in \mathbb{R}\}$

$R: \{y \geq -53\}$

Min y value of -53

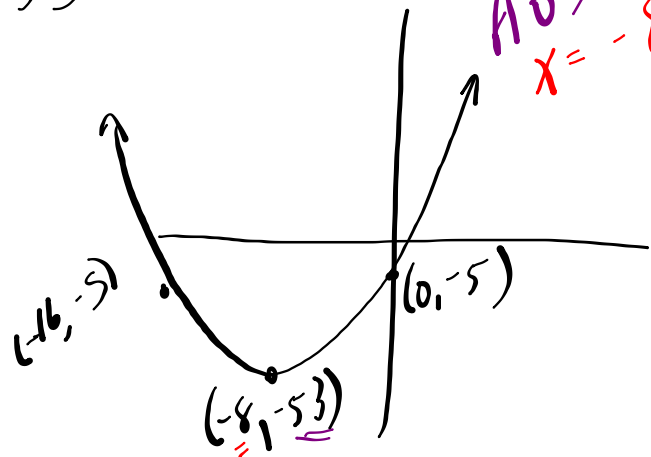
$a = \frac{3}{4}$ opens up wider

y int $(0, -5)$


$12 \div \frac{3}{4}$
 $12 \times \frac{4}{3}$

vertex $(-8, -53)$

AOS
 $x = -8$



HOMEWORK...

 Worksheet - Standard to Vertex (any value of a).pdf

Do 8 of the 12 questions

Attachments

Worksheet - Standard to Vertex ($a = 1$).pdf

Worksheet - Standard to Vertex (any value of a).pdf