

HOMEWORK ???

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

8

$$\left(\frac{5}{2}\right)^2 = \frac{25}{4}$$

y-int
(0,0)

Do even #'s

(4)

$$y = x^2 + 5x$$

$$y = \left(x^2 + 5x + \frac{25}{4}\right) - \frac{25}{4}$$

Vertex
 $\left(-\frac{5}{2}, -\frac{25}{4}\right)$

$$y = \left(x + \frac{5}{2}\right)^2 - \frac{25}{4}$$

⑧

$$y = \underline{2}x^2 + 4x$$

$$y = 2(x^2 + \underline{2}x)$$

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

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

y-int
(0,0)vertex
(-1, -2)

Examples: S → V: Complete the square with "a ≠ 1".

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

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

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

$$y = 4(x - 3)^2 - 36 \quad \text{vertex } (3, -36)$$

#2. $y = -3x^2 + 12x + 10$

y-int (0,10)

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

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

vertex (2,22)

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

#3. $y = -5x^2 - 15x + 9$

y-int (0,9)

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

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

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

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

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

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

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

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

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

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


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

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

y-int $(0, -5)$
 $a = 3/4$
 ↑ open up
 ↑ stretch factor (wider)

$12 \div \frac{3}{4}$
 $12 \cdot \frac{4}{3}$
 16

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