Math 2 Support KEY Name: _____

# Converting Quadratic Equations Worksheet: Standard to Vertex

Convert the following quadratics from vertex form to standard form.

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

$y = -(x-1)(x-1) - 1$

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

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

$y = -x^2 + 2x - 2$

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

$y = 2(x-2)(x-2) - 3$

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

$y = 2x^2 - 8x + 8 - 3$

$y = 2x^2 - 8x + 5$

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

$y = (x+4)(x+4) + 4$

$y = x^2 + 8x + 16 + 4$

$y = x^2 + 8x + 20$

Convert the following quadratics from standard form to vertex form.

4) $y = x^2 - 8x + 15$

$a = 1$

$h = \frac{-8}{2} = 4$

$k = -1$

$y = (x-4)^2 - 1$

5) $y = x^2 - 4x$

$a = 1$

$h = \frac{-4}{2} = -2$

$k = -4$

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

6) $y = x^2 + 8x + 18$

$a = 1$

$h = \frac{-8}{2} = -4$

$k = 2$

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

7) $y = x^2 + 4x + 3$

$a = 1$

$h = \frac{-4}{2} = -2$

$k = -1$

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

8) $y = x^2 - 2x + 5$

$a = 1$

$h = \frac{-2}{2} = 1$

$k = 4$

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

9) $y = x^2 - 8x + 17$

$a = 1$

$h = \frac{-8}{2} = 4$

$k = 1$

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

Convert the following quadratics from standard form to vertex form, then graph them.

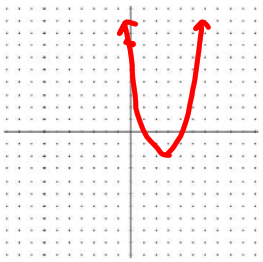
10) $y = x^2 - 6x + 7$

$a=1$

$h=\frac{6}{2}=3$

$y=-2$

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



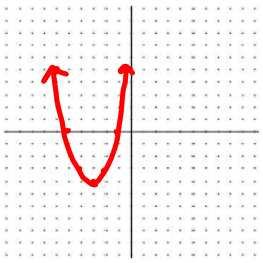
11) $y = x^2 + 6x + 5$

$a=1$

$h=\frac{-6}{2}=-3$

$k=-4$

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



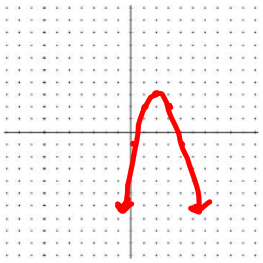
12) $y = -x^2 + 4x - 1$

$a=-1$

$h=\frac{-4}{-2}=2$

$k=3$

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



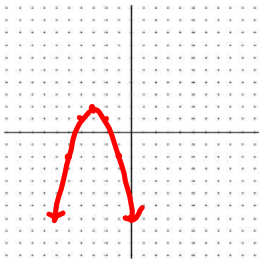
13) $y = -x^2 - 6x - 7$

$a=-1$

$h=\frac{6}{-2}=-3$

$k=2$

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



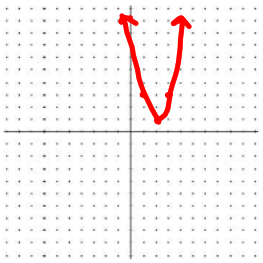
14) $y = 2x^2 - 8x + 9$

$a=2$

$h=\frac{8}{4}=2$

$k=1$

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



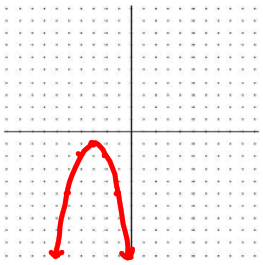
15) $y = -x^2 - 6x - 10$

$a=-1$

$h=\frac{6}{-2}=-3$

$k=-1$

$y=-(x+3)^2-1$



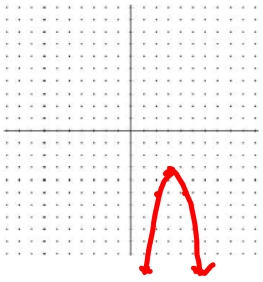
16) $y = -2x^2 + 12x - 21$

$a=-2$

$h=\frac{-12}{-4}=3$

$k=-3$

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



17) $y = x^2 + 8x + 15$

$a=1$

$h=\frac{-8}{2}=-4$

$k=-1$

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