Name KEY

4.1 – 4.2 Practice Quiz Algebra 2

* NO GRAPHING CALCULATOR *

For 1 – 3, graph the function. Clearly show the vertex, axis of symmetry, and 4 other points.

1. $y = x^2 - 6x + 7$

$x = \frac{-b}{2a} = \frac{6}{2(1)} = \frac{6}{2} = 3$

$y = (3)^2 - 6(3) + 7$

$= 9 - 18 + 7 = -2$

vertex $(3, -2)$

y-int = 7

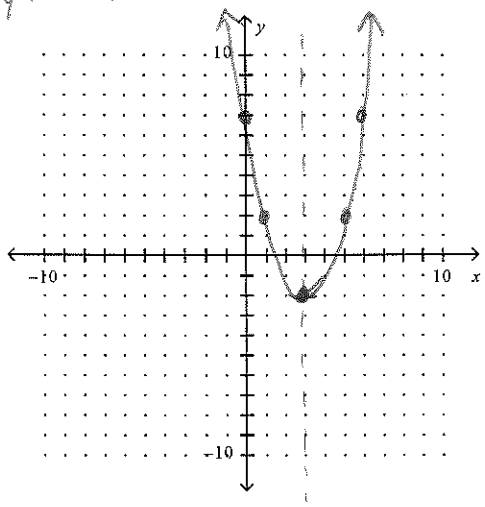
$x = 1$

$y = (1)^2 - 6(1) + 7$

$= 1 - 6 + 7$

$= 2$

$(1, 2)$



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

vertex: $(1, -4)$

$x = 0$

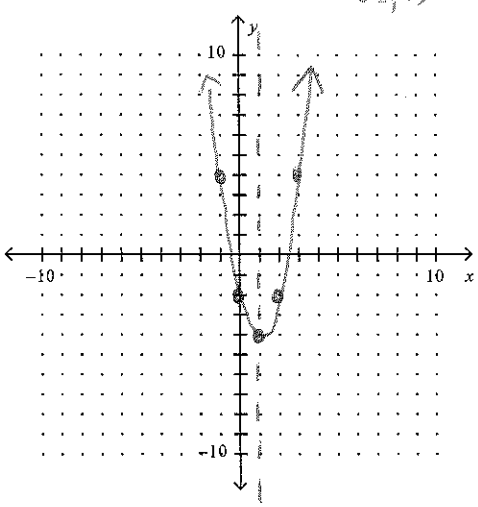
$y = 2(0-1)^2 - 4 = -2$

$(0, -2)$

$x = 3$

$y = 2(3-1)^2 - 4 = 4$

$(3, 4)$



3. $y = -2(x-4)(x-2)$

x-int's 4 and 2

vertex: $x = \frac{4+2}{2} = 3$

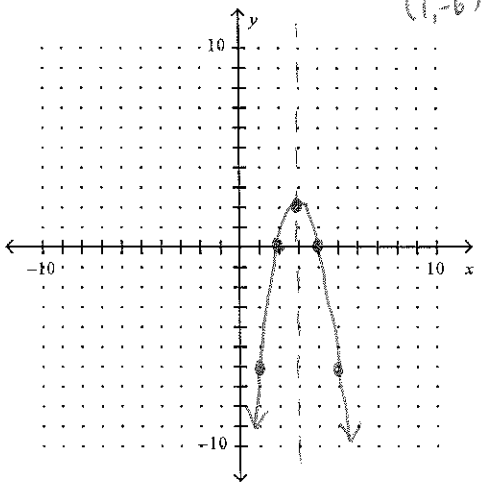
$y = -2(3-4)(3-2) = 2$

$(3, 2)$

$x = 1$

$y = -2(1-4)(1-2) = -6$

$(1, -6)$



Write the quadratic function in standard form.

4. $y = -2(x-9)(x+7)$

$y = -2(x^2 + 7x - 9x - 63)$

$= -2(x^2 - 2x - 63)$

$y = -2x^2 + 4x + 126$

5. $y = -4(x+6)(x-8)$

$y = -4(x^2 - 8x + 6x - 48)$

$= -4(x^2 - 2x - 48)$

$y = -4x^2 + 8x + 192$

6. $y = 3(x-4)^2 - 8$

$y = 3(x-4)(x-4) - 8$

$y = 3(x^2 - 8x + 16) - 8$

$y = 3x^2 - 24x + 48 - 8$

$y = 3x^2 - 24x + 40$

Describe how each graph relates to the parent graph $y = x^2$. . Identify any vertical stretches or shrinks, reflections, and horizontal and vertical translations.

7. $y = -\frac{1}{2}x^2 + 5$

Vertical shrink - scale factor of $\frac{1}{2}$.

Reflection in x-axis.

Translation (shift) 5 units up.

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

Vertical stretch - scale factor of 4.

Translation 1 unit right and 2 units down.

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

Vertical stretch - scale factor of 5.

Translation 3 units left.