

Name: Key

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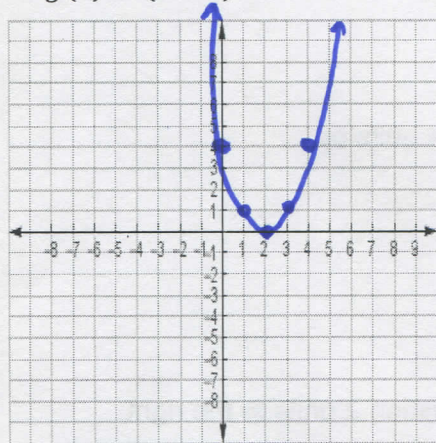
## Ch. 2 Quadratic Function Test Review

Use when you get it right all by yourself  
*S* Use when you did it all by yourself, but made a silly mistake  
*H* Use when you could do it alone with a little help from teacher or peer  
*G* Use when you completed the problem in a group  
*X* Use when a question was attempted but wrong (get help)  
*N* Use when a question was not even attempted

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Graphing Quadratic Functions	1, 4, 8	2, 3, 9	10
Describing Transformations	1, 4	2, 3	
Domain/Range	1, 4, 8	2, 3, 9	
Writing functions given transformations	5, 6	7	
Labeling parts of a parabola		10	
Identifying Key Characteristics		10	
Writing an Equation given key characteristics			11, 12

**1 – 4: Graph the function, describe the transformation(s) from  $f(x) = x^2$ , and state the domain and range of the new transformed function in interval notation.**

1.  $g(x) = (x - 2)^2$

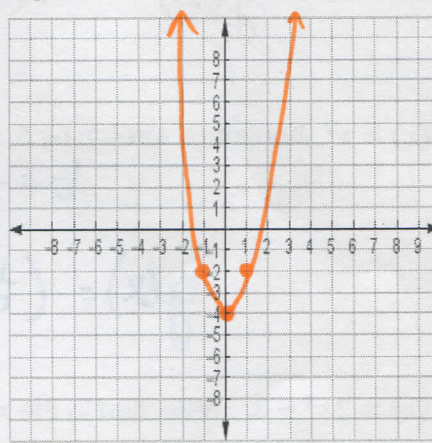


Transformation(s):  $\rightarrow 2u$

Domain:  $(-\infty, \infty)$

Range:  $[0, \infty)$

2.  $g(x) = 2x^2 - 4$

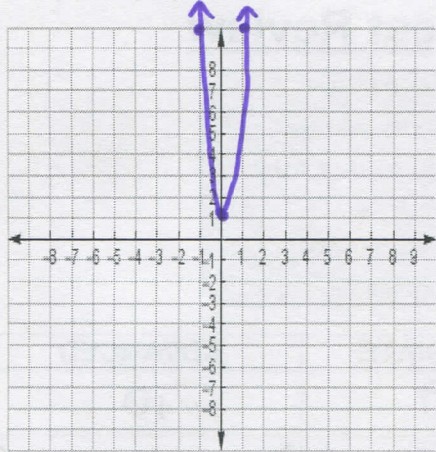


Transformation(s):  $\vee S 2; \downarrow 4u$

Domain:  $(-\infty, \infty)$

Range:  $[-4, \infty)$

3.  $h(x) = (3x)^2 + 1$

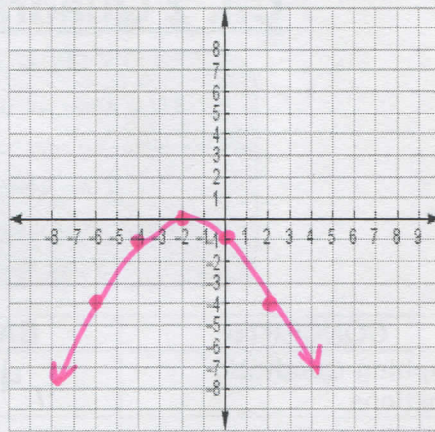


Transformation(s):  $HC \frac{1}{3}$ ;  $\uparrow 1u$

Domain:  $(-\infty, \infty)$

Range:  $[1, \infty)$

4.  $h(x) = -\frac{1}{4}(x+2)^2$



Transformation(s):  $R_x$ ;  $VC \frac{1}{4}$ ;  $\leftarrow 2u$

Domain:  $(-\infty, \infty)$

Range:  $(-\infty, 0]$

5 – 7: Write a rule for  $g(x)$  described by the transformation of the graph of  $f(x)$ .

5.  $f(x) = x^2$ , vertical stretch by a factor of 4 and a reflection in the x-axis, followed by a translation 2 units down.

$a = -4$      $k = -2$

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

6.  $f(x) = x^2$ , horizontal stretch by 5, followed by a translation 4 units up.

$b = \frac{1}{5}$      $k = 4$

$$g(x) = \left(\frac{1}{5}x\right)^2 + 4$$

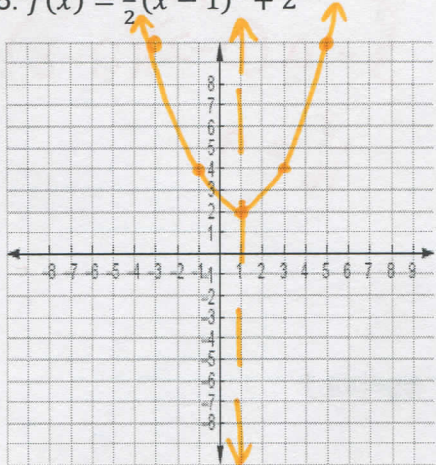
7.  $f(x) = 2x^2 - 3$ , reflection in the x-axis, followed by a translation 2 units to the right.

$a = -1$      $h = 2$

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

8 – 9: Graph the function. Label the vertex and axis of symmetry. State the domain and range.

8.  $f(x) = \frac{1}{2}(x - 1)^2 + 2$

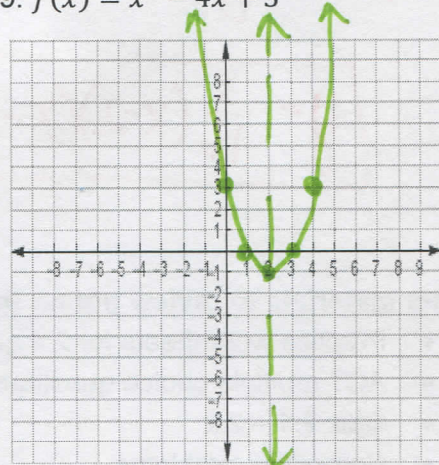


V: (1, 2)  
AofS:  
X = 1

Domain:  $(-\infty, \infty)$

Range:  $[2, \infty)$

9.  $f(x) = x^2 - 4x + 3$



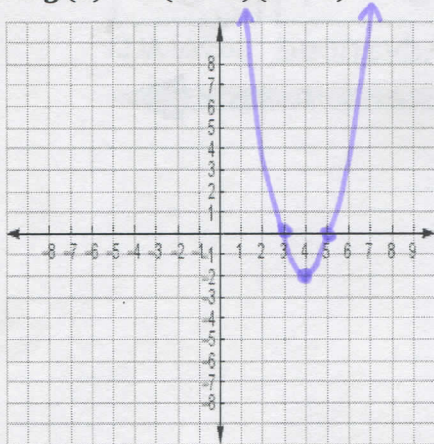
V: (2, -1)  
AofS:  
X = 2

Domain:  $(-\infty, \infty)$

Range:  $[-1, \infty)$

10: Graph the function. Label the x-intercepts, vertex, and axis of symmetry. State the key characteristics.

10.  $g(x) = 2(x - 3)(x - 5)$



x-intercepts: (3, 0); (5, 0)

roots  $X = 3, 5$

y-intercept: (0, 30)

vertex: (4, -2)

Axis of Symmetry:  $X = 4$

Domain:  $(-\infty, \infty)$

Range:  $[-2, \infty)$

11: Write the equation of a parabola in vertex form from the given information: passes through (0, -5) and has a vertex at (3, 2).

x y

h k

$$y = -\frac{7}{9}(x - 3)^2 + 2$$

$$y = a(x - h)^2 + k$$

$$-5 = a(0 - 3)^2 + 2$$

$$-\frac{7}{9} = a$$

12: Write the equation of a parabola in root form from the given information: x-intercepts of (2, 0) and (8, 0), and passes through (0, 3).

$p$        $q$        $x$   $y$

$$y = \frac{3}{16}(x-2)(x-8)$$

$$y = a(x-p)(x-q)$$
$$3 = a(0-2)(0-8)$$

$$\frac{3}{16} = a$$

**Other materials to review not on this review:**

- Practice worksheets for 2.4 quadratic regression
- ACT multiple choice questions that can be chapter 1 or algebra 1
- Quiz 2.1 – 2.2
- Homework problems

**CYU Reflection:** How far can you go: basic, intermediate, or advanced?

**Rate your mastery level!**

How confident are you with the skills this CYU covered? Circle the score you would give yourself.

