Name _____

Algebra 2
1.2 Transformations Practice WS

1. Which of the following are true about the graph of $f(x) = -4x^2$? *Select all that apply*.

A. The domain is $x \in \mathbb{R}$

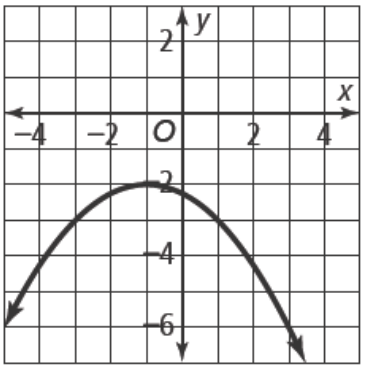
B. The range of *f* is $y \in (-\infty, -4]$

C. f is decreasing over the interval $x \in (-\infty, \infty)$

D. The point $(0, 0)$ is a maximum

E. There are two *x*-intercepts

2. What transformations of $f(x) = x^2$ combine to result in the graph of function $y = g(x)$ shown to the right? *Select all that apply*.



A. Translation of 1 unit left

B. Translation of 1 unit right

C. Translation of 2 units up

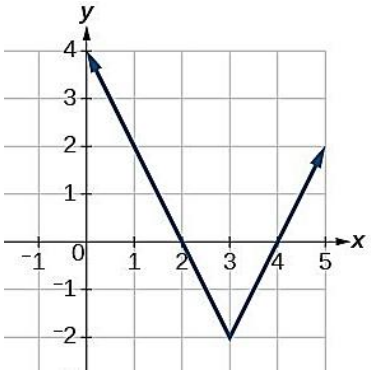
D. Translation of 2 units down

E. Horizontal dilation by a scale factor of 2

F. Vertical dilation by a scale factor of 2

G. Reflection across the *x*-axis

3. For the function $y = h(x)$ shown to the right, identify the following:



Domain: Range:

x-intercept(s): *y*-intercept:

Interval(s) where $h(x) > 0$:

Interval(s) where $h(x) < 0$:

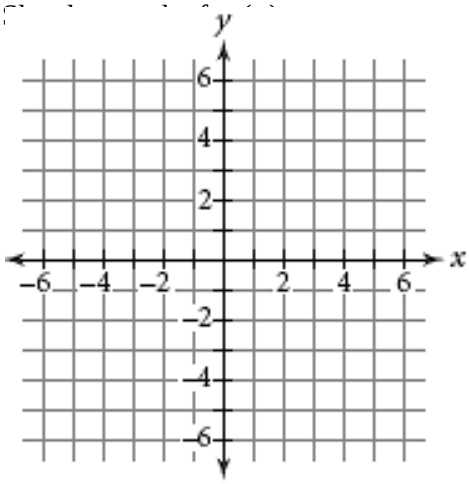
Interval(s) where $h(x)$ is increasing:

Interval(s) where $h(x)$ is decreasing:

4. The quadratic parent function is reflected across the *x*-axis, horizontally dilated by 3, translated right 1 and up 4.

a. Write the equation for the transformed function, $g(x)$.

b. [illegible]



5. Describe the transformations from the parent function that results in each of the following functions:

a. $h(x)=2\left|-(x+1)\right|-3$

b. $p(x)=-\frac{1}{5}(x-7)^2+2$

6. Write a rule for each function described by the transformations of the given parent function.

a. $f(x)=|x|$: horizontal dilation scale factor 1/4, a reflection over the *x*-axis, then a vertical translation up 2.

b. $f(x)=|x|$: vertical dilation by a scale factor 1/3, a reflection over the *y*-axis, then a horizontal translation right 4.

c. $f(x)=x^2$: horizontal dilation by a scale factor of 2, then a translation left 3 and down 5.

7. For questions **6 part c**, what vertical dilation could have been described, resulting in the same transformed function?

8. Match the functions in parts **a-f** with its graph in **i-vi**.

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

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

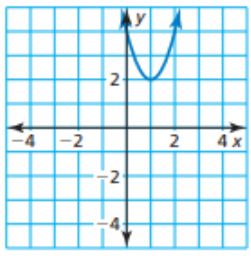
c. $c(x)=-2(x-1)^2+2$

d. $d(x)=2(x+1)^2+2$

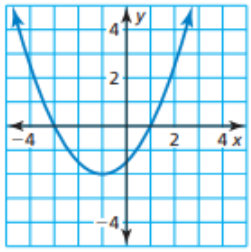
e. $e(x)=-2(x+1)^2-2$

f. $f(x)=2(x-1)^2+2$

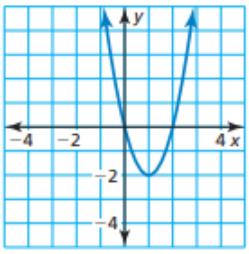
i.



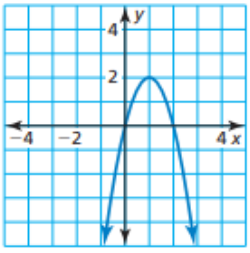
ii.



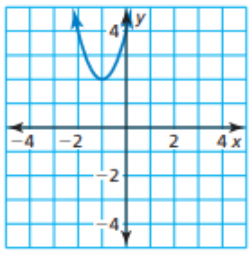
iii.



iv.



v.



vi.