Math 2 Name _____

Transformations worksheet Date _____ Per _____

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

a<0 / a>1 or 0<a<1

Reflection over x-axis / Vertical Stretch / compression 11) describe the effect of **a** on the graph.

Shifts Left or right 12) describe the effect of **h** on the graph.

Shifts up or down 13) describe the effect of **k** on the graph.

**Identify the parent function name and describe the transformation for each function.**

6. $g(x) = 3(x-1)^2 - 6$ Name: Quadratic

Transformation: 1) V.S by factor of 3 2) Shift Right 1 3) Shift Down 6

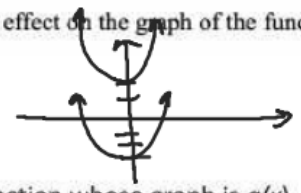
7. $f(x) = 5(x-2)^3 - 11$ Name: Cubic

Transformation: 1) V.S. by factor of 5 2) Shift Rt 2 3) Shift Down 11

8. $h(x) = \frac{2}{3}|x+6|$ Name: Absolute Value Transformation 1) Vertical compression by factor 2/3 2) Left 6.

9. $f(x) = x + 6$ Name: Linear Transformation 1) Shift up 6.

10. What is the effect on the graph of the function $y = x^2 + 2$ when it is changed to $y = x^2 - 3$? Shift Down 5.



11. Write a function whose graph is *g(x)*.

A) $f(x) = x^2$ a vertical stretch by a factor of 4, then a shift left 6

$g(x) = 4(x+6)^2$

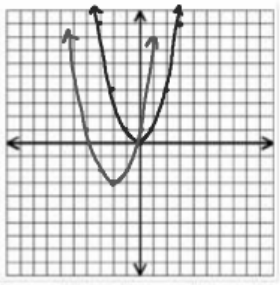
B) $f(x) = |x|$ a horizontal shift right 6 and a vertical compression by a factor of $\frac{1}{3}$

$g(x) = \frac{1}{3}|x-6|$

**Name the Parent Function. List the transformations. Graph each equation.**

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

Quadratic

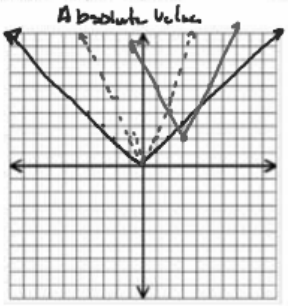


1) Left 2

2) Down 3

19. $y=2|x-3|+2$

Absolute Value



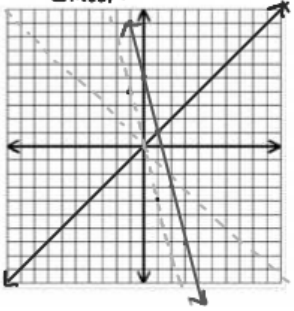
1) Right 3

2) Vertical Stretch by Factor of 2

3) Up 2

20. $y=-4x+5$

Linear



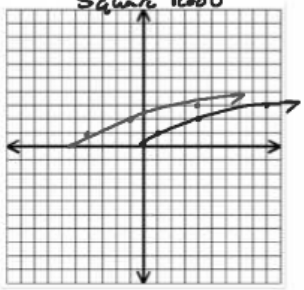
1) Reflection over x-axis

2) Vertical Stretch by Factor of 4

3) Shift up 5

21. $y=\sqrt{x+5}$

Square Root



1) Left 5

| x | y |
|---|---|
| 0 | 0 |
| 1 | 1 |
| 4 | 2 |
| 9 | 3 |

Describe how to transform the graph of f into the graph of g.

A) $f(x)=4|x|$ into $g(x)=12|x|$

Vertical Stretch by factor of 3

B) $f(x)=\sqrt{x+4}$ into $g(x)=\sqrt{x-10}$

Shift Right 14.

C) $f(x)=(x-4)^2$ into $g(x)=-(x+2)^2$

Reflection over x-axis

Left 6