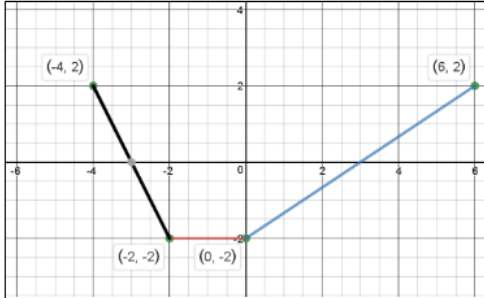


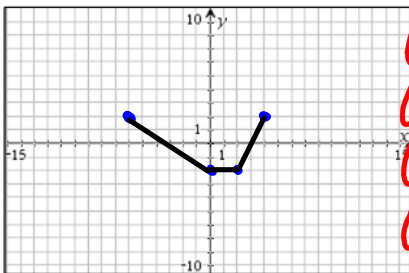
Pre-Calculus
Funky Transformations

Name _____
Date _____ Per _____

Given the graph of $f(x)$ below, sketch each transformation.

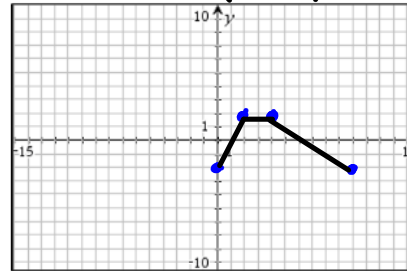


1. $y = f(-x)$ $(-x, y)$



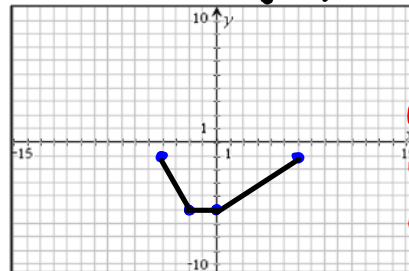
$(-4, 2) \rightarrow (4, 2)$
 $(-2, -2) \rightarrow (2, -2)$
 $(0, -2) \rightarrow (0, -2)$
 $(6, 2) \rightarrow (-6, 2)$

4. $y = -f(x - 4)$ $(x + 4, -y)$



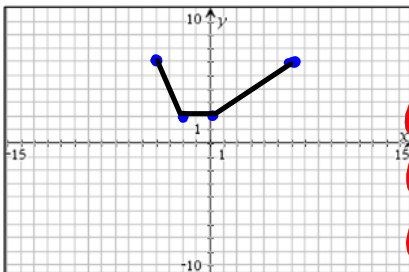
$(-4, 2) \rightarrow (0, -2)$
 $(-2, -2) \rightarrow (2, 2)$
 $(0, -2) \rightarrow (4, 2)$
 $(6, 2) \rightarrow (10, -2)$

5. $y = f(x) - 3$ $(x, y - 3)$



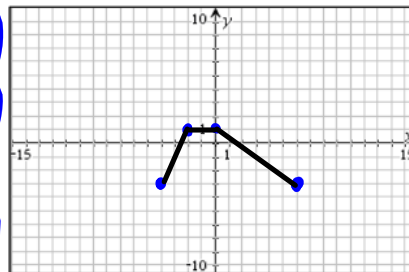
$(-4, 2) \rightarrow (-4, -1)$
 $(-2, -2) \rightarrow (-2, -5)$
 $(0, -2) \rightarrow (0, -5)$
 $(6, 2) \rightarrow (6, -1)$

2. $y = f(x) + 4$ $(x, y + 4)$



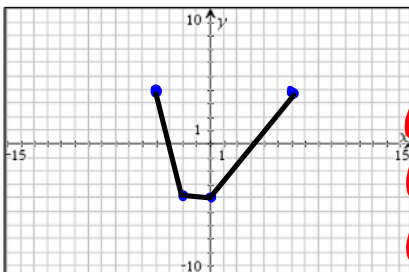
$(-4, 2) \rightarrow (-4, 6)$
 $(-2, -2) \rightarrow (-2, 2)$
 $(0, -2) \rightarrow (0, 2)$
 $(6, 2) \rightarrow (6, 6)$

6. $y = -f(x) - 1$ $(x, -y - 1)$



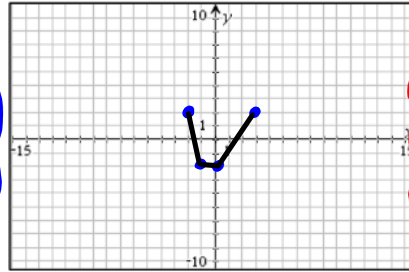
$(-4, 2) \rightarrow (-4, -3)$
 $(-2, -2) \rightarrow (-2, 1)$
 $(0, -2) \rightarrow (0, 1)$
 $(6, 2) \rightarrow (6, -3)$

3. $y = 2f(x)$ $(x, 2y)$



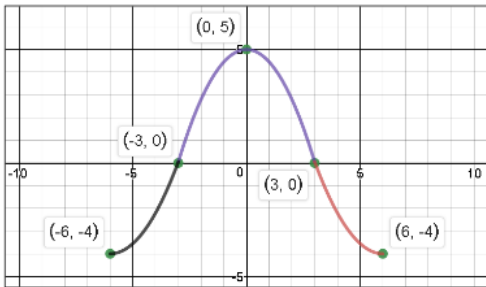
$(-4, 2) \rightarrow (-4, 4)$
 $(-2, -2) \rightarrow (-2, -4)$
 $(0, -2) \rightarrow (0, -4)$
 $(6, 2) \rightarrow (6, 4)$

7. $y = f(2x)$ $(\frac{x}{2}, y)$

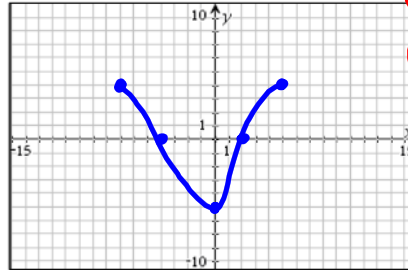


$(-4, 2) \rightarrow (-2, 2)$
 $(-2, -2) \rightarrow (-1, -2)$
 $(0, -2) \rightarrow (0, -2)$
 $(6, 2) \rightarrow (3, 2)$

Given the graph of $f(x)$ below, sketch each transformation.

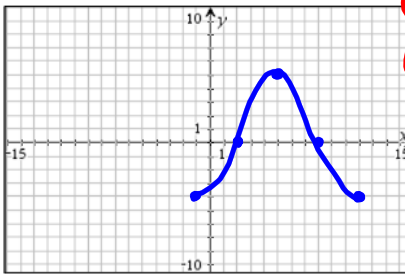


4. $y = -f(x+1)(x-1, -y)$



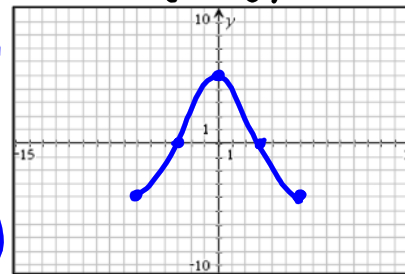
- $(-6, -4) \rightarrow (-7, 4)$
- $(-3, 0) \rightarrow (-4, 0)$
- $(0, 5) \rightarrow (0, -5)$
- $(3, 0) \rightarrow (2, 0)$
- $(6, -4) \rightarrow (5, 4)$

1. $y = f(x-5)(x+5, y)$



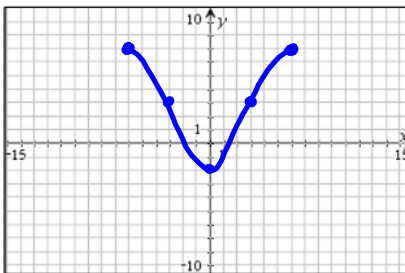
- $(-6, -4) \rightarrow (-1, -4)$
- $(-3, 0) \rightarrow (2, 0)$
- $(0, 5) \rightarrow (5, 5)$
- $(3, 0) \rightarrow (8, 0)$
- $(6, -4) \rightarrow (11, -4)$

5. $y = f(-x)(-x, y)$



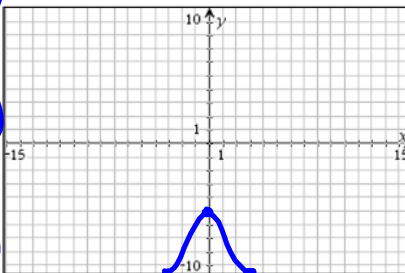
- $(-6, -4) \rightarrow (6, -4)$
- $(-3, 0) \rightarrow (3, 0)$
- $(0, 5) \rightarrow (0, 5)$
- $(3, 0) \rightarrow (-3, 0)$
- $(6, -4) \rightarrow (-6, -4)$

2. $y = -f(x) + 3(x, -y+3)$



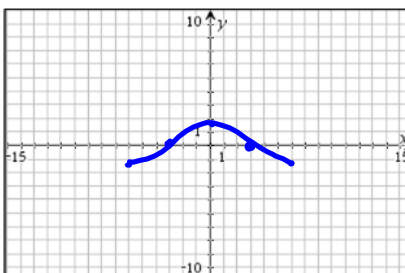
- $(-6, -4) \rightarrow (-6, 7)$
- $(-3, 0) \rightarrow (-3, 3)$
- $(0, 5) \rightarrow (0, -2)$
- $(3, 0) \rightarrow (3, 3)$
- $(6, -4) \rightarrow (6, 7)$

6. $y = f(x) - 10(x, y-10)$



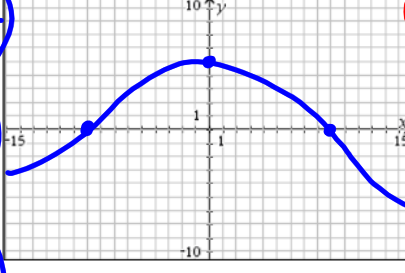
- $(-6, -4) \rightarrow (-6, -14)$
- $(-3, 0) \rightarrow (-3, -10)$
- $(0, 5) \rightarrow (0, -5)$
- $(3, 0) \rightarrow (3, -10)$
- $(6, -4) \rightarrow (6, -14)$

3. $y = \frac{1}{3}f(x)(x, \frac{1}{3}y)$



- $(-6, -4) \rightarrow (-6, \frac{4}{3})$
- $(-3, 0) \rightarrow (-3, 0)$
- $(0, 5) \rightarrow (0, \frac{5}{3})$
- $(3, 0) \rightarrow (3, 0)$
- $(6, -4) \rightarrow (6, \frac{4}{3})$

7. $y = f(\frac{1}{3}x)(3x, y)$



- $(-6, -4) \rightarrow (-18, -4)$
- $(-3, 0) \rightarrow (-9, 0)$
- $(0, 5) \rightarrow (0, 5)$
- $(3, 0) \rightarrow (9, 0)$
- $(6, -4) \rightarrow (18, -4)$