Secondary Math 2 Honors Name_____

5.1 Graphing Transformations

Period____

1) Describe the effect each part of the equation has on the transformations of the graph.

$$y = a(x-h)^2 + k \quad \text{and} \quad y = a|x-h| + k$$

Without graphing, describe the transformations of each function.

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

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

4) $y = |x-3|$

5) $y = |x| + 2$

6) $y = 3\sqrt{x-4} - 7$

7) $y = -(x-4)^3 + 1$

Transform the given function $f(x)$ as described and write the resulting function as an equation.

8) $f(x) = x^2$
compress vertically by a factor of 3
reflect across the x-axis

9) $f(x) = |x|$
reflect across the x-axis
translate down 2 units

10) $f(x) = |x|$
reflect across the x-axis
translate left 3 units

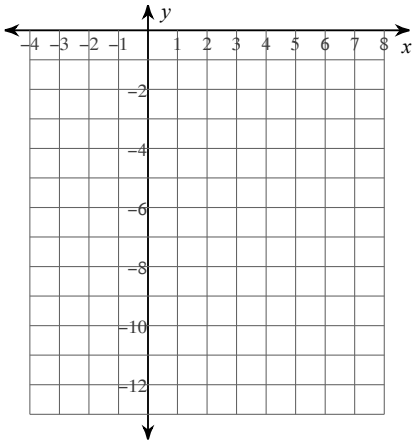
11) $f(x) = x^2$
compress vertically by a factor of 3
translate right 2 units

12) $f(x) = x^3$
reflect across the x-axis
translate up 2 units

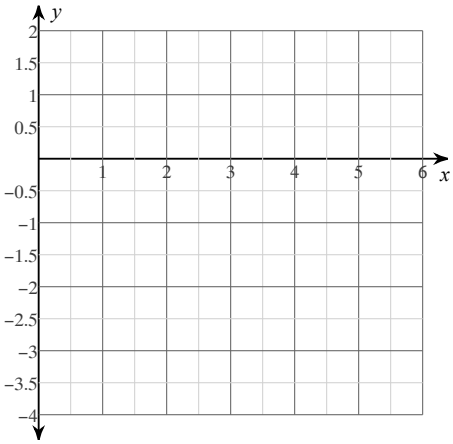
13) $f(x) = |x|$
expand vertically by a factor of 2
translate left 1 unit

Sketch the graph of each function. Then state the domain and range.

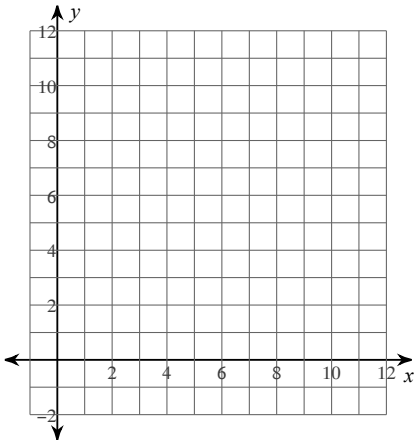
14) $y = -2(x + 1)^2 - 4$



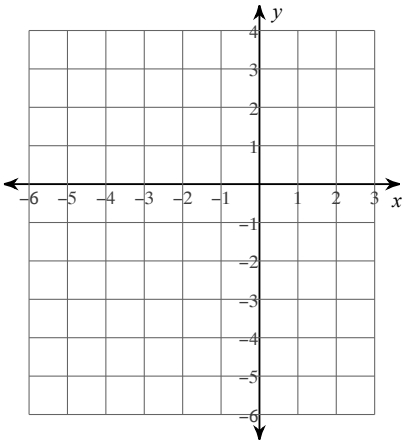
15) $y = (x - 3)^2 - 3$



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

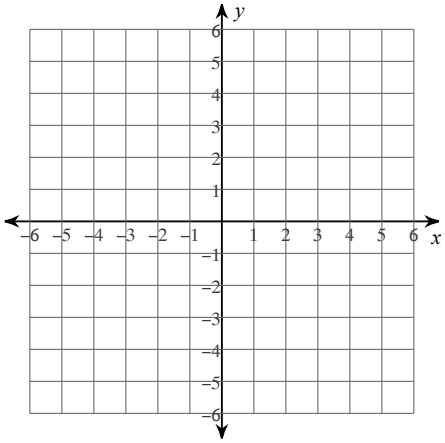


17) $y = -2(x + 4)^2 + 3$

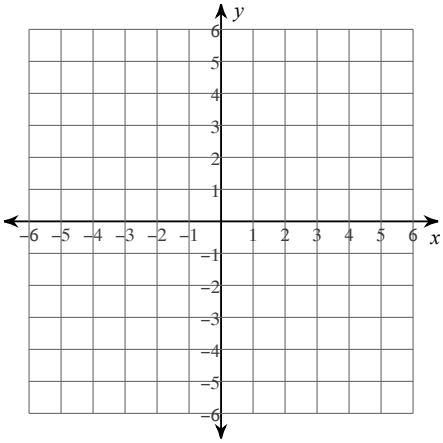


Graph each equation.

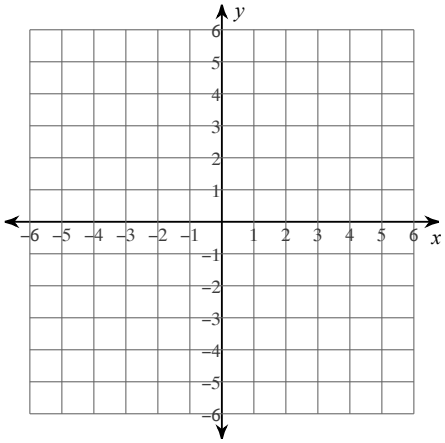
18) $y = -2\left|x + 4\right| - 2$



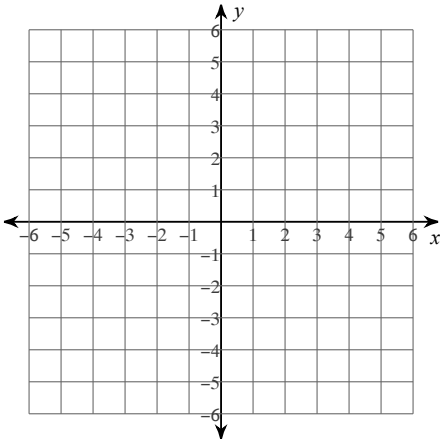
19) $y = 3\left|x - 4\right| + 1$



20) $y = 2\left|x\right| - 3$

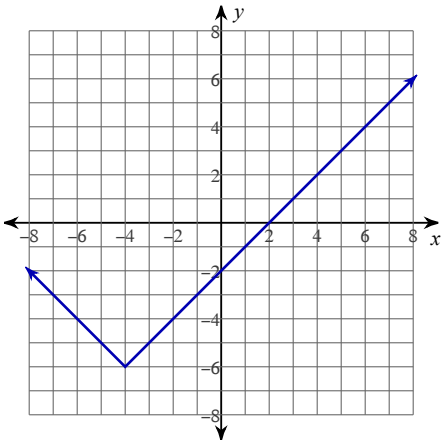


21) $y = -3\left|x - 4\right|$



Write the equation for the given graph.

22)



23)