

Name: \_\_\_\_\_  
PC: Sketching Transformations

Date: \_\_\_\_\_  
Ms. Loughran

1. Graph each function as a transformation of the basic function  $y = |x|$ . State the domain and range of each.

(a)  $y = -|x|$

(c)  $y = 3 - |x|$

(b)  $y = |3 - x|$

(d)  $y = |x + 2| - 1$

2. Graph each function as a transformation of the basic function  $y = x^2$ . State the domain and range of each.

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

(i)  $y = x^2 + 6x + 9$

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

(j)  $y = x^2 + 4x$

(c)  $y = (x + 2)^2$

(k)  $y = x^2 - 8x + 15$

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

(l)  $y = x^2 - 2x - 6$

(e)  $y = -x^2$

(m)  $y = x^2 + 6x + 10$

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

(n)  $y = x^2 + 14x + 40$

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

(h)  $y = 2 - (x - 4)^2$

3. Graph each function as a transformation of the basic function  $y = \sqrt{x}$ . State the domain and range of each.

(a)  $y = \sqrt{x} + 1$

(c)  $y = \sqrt{x + 2} - 3$

(b)  $y = \sqrt{x - 1} + 2$

(d)  $y = -\sqrt{x + 3} - 1$

4. Graph each function as a transformation of the basic function  $y = x^3$ . State the domain and range of each.

(a)  $y = -x^3$

(c)  $y = (x - 5)^3$

(b)  $y = x^3 + 3$

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

5. Graph each function as a transformation of the basic function  $y = x^4$ . State the domain and range of each.

(a)  $y = x^4 + 1$

(c)  $y = (x - 4)^4$

(b)  $y = -x^4 - 1$

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