

Name: _____

Analyzing Graphs of Functions

- 1) Sketch the graphs of the three functions by hand on the same rectangular coordinate system.

1) $f(x) = x^2$ $g(x) = x^2 + 2$ $h(x) = (x - 2)^2$

2) $f(x) = -x^2$ $g(x) = -x^2 + 1$ $h(x) = -(x - 2)^2$

3) $f(x) = x^2$ $g(x) = x^2 - 4$ $h(x) = (x + 2)^2 + 1$

4) $f(x) = x^2$ $g(x) = \frac{1}{2}x^2$ $h(x) = (2x)^2$

5) $f(x) = |x|$ $g(x) = |x| - 1$ $h(x) = |x - 3|$

6) $f(x) = \sqrt{x}$ $g(x) = \sqrt{x + 1}$ $h(x) = \sqrt{x - 2} + 1$

- 2) Let c be a positive real number. Complete the following representations of shifts in the graph of $f(x) = |x|$

- 1) Vertical shift c units upward
- 2) Vertical shift c units downward
- 3) Horizontal shift c units to the right
- 4) Horizontal shift c units to the left