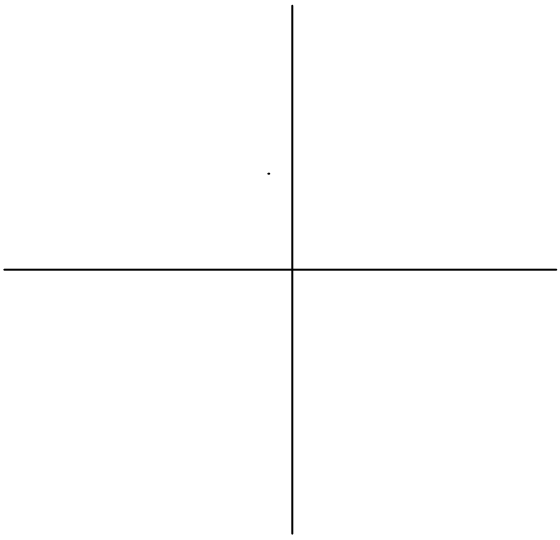
3.) (12 pts) (a) On the axes below, sketch a graph of a single *continuous* function, $y = f(x)$, which has ***all*** of the following features:

- $f(0) = -3$
- $f(-2) = 0$ and $f(3) = 0$
- f is decreasing for $x < 0$
- f is increasing for $x > 0$
- f is concave up for $x < 2$
- f is concave down for $x > 2$
- $f(x) \to 4$ as $x \to \infty$



(b) Is the function you drew in part (a) *invertible*? Explain why or why not.

4.) Data from three functions is shown in the table below. One function is linear, one is a power function, and one is neither of these.

x	-2	0	2	4	6	8
$f(x)$	16.5	20	24.2	29.3	35.4	42.9
$g(x)$	17.6	20	22.4	24.8	27.2	29.6
$h(x)$	4.4	0	4.4	17.6	39.6	70.4

(a) (6 pts) Determine a formula for the linear function. [Be certain to use the appropriate function name—*i.e.*, *f*, *g*, or *h*, from the table.]

(b) (6pts) Determine a formula for the power function. [Again use the correct function name.]