Lesson 2-2 Extension: Piecewise Functions ***LO:*** *I can graph piecewise functions by using a table of values.* I can graph absolute value functions using piecewise functions or by using a table of values.

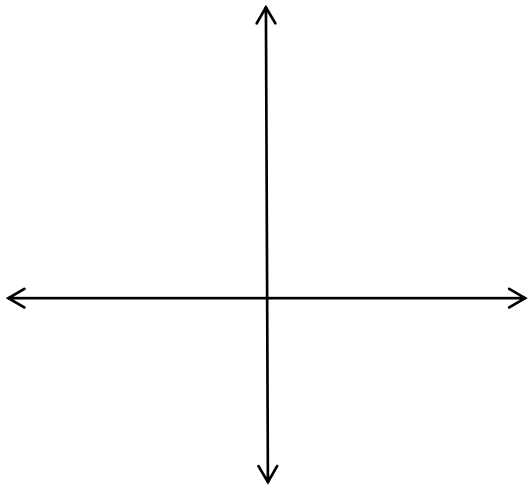
Date: _____

Piecewise Function – ***A Function in which different equations are used for different intervals of the domain. It is defined in pieces.***

Absolute Value Function – ***A piecewise function, written as*** $f(x) = |x|, where\ f(x) \geq 0\ for\ all\ values\ of\ x.$ ***An absolute value function will always have a V-Shaped graph. If the coefficient in front of the absolute value symbol is positive, the v-shape will open upwards. If the coefficient In front of the absolute value symbol is negative, the v-shape will open downwards.***

Consider $f(x) = |x|$***, this function can be written as a piecewise function:***

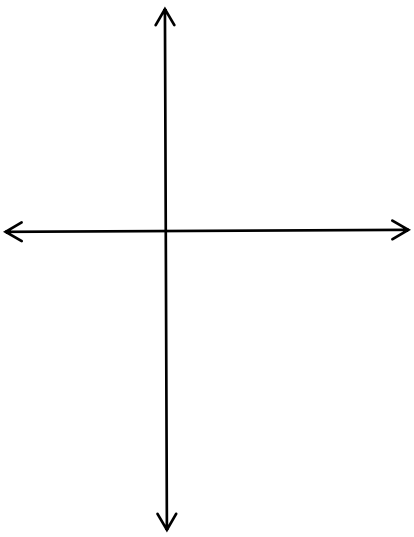
$$f(x) = f(x) = \begin{cases} -x, & x < 0 \\ x, & x \geq 0 \end{cases}$$



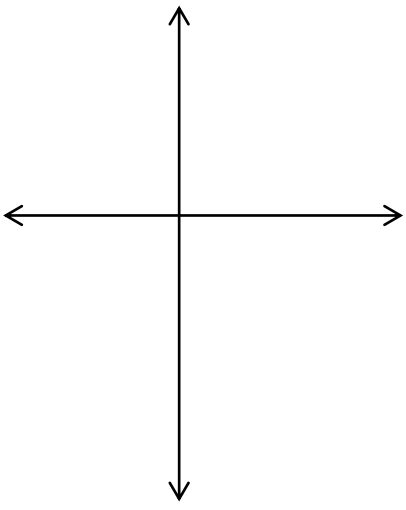
EX.1 – Graphing Absolute Value Functions

Graph the following absolute value functions using piecewise functions.

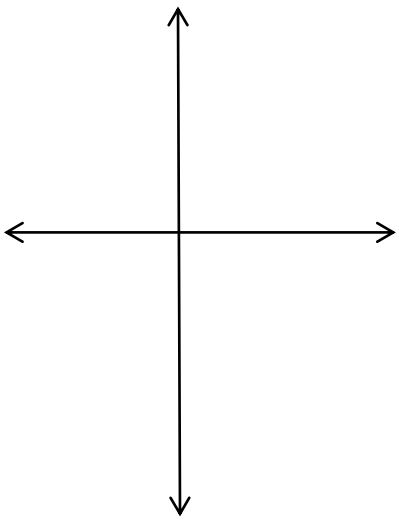
a.) $f(x) = 2|x| - 6$



b.) $f = -2|x| + 3$

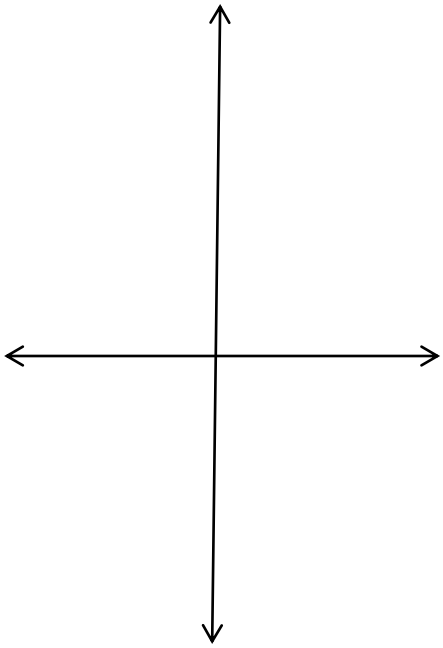


c.) $f(x) = |x + 6|$

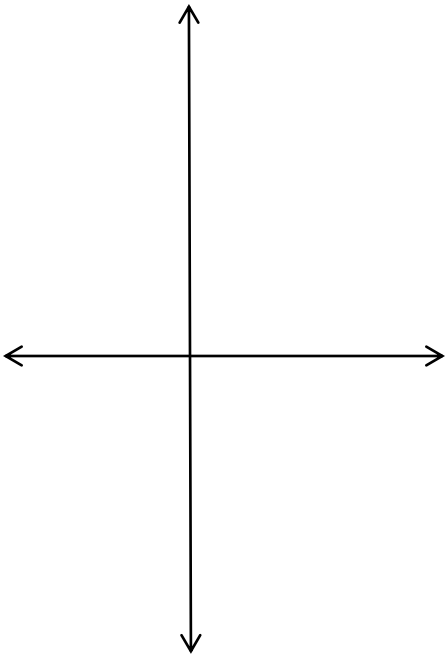
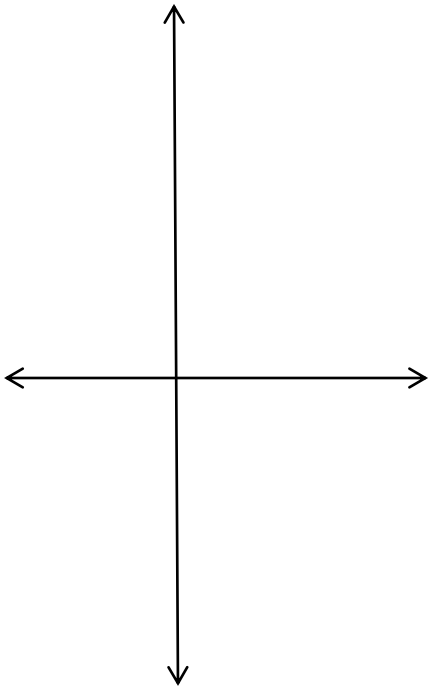


Graph the following absolute value functions using a table of values.

d.) $f(x) = |x - 5|$



e.) $g(x) = |2x + 3|$



f). $h(x) = 2|x - 3| - 4$