

Vertical Line Test

Vertical Line Test

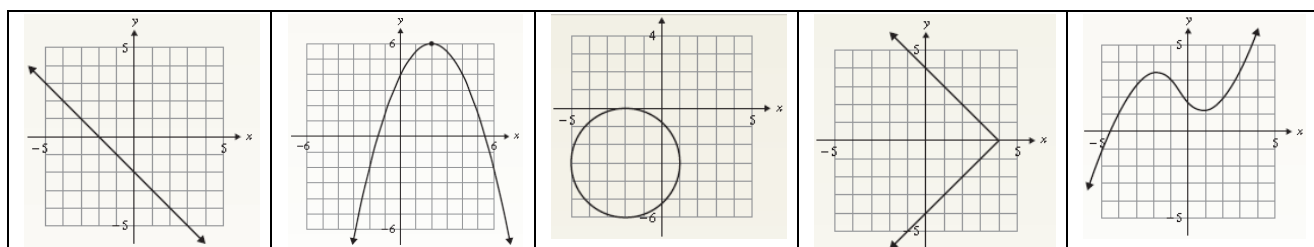
A graph is the graph of a function if and only if there is no **vertical** line that crosses the graph more than once.

Does the following represent a function?

$\{ (-4, 2), (-2, 0), (0, -2), (2, -4) \}$ These points are on the line of the first graph on the next page. Any vertical line drawn through the line of the graph does not cross in more than one place. Therefore, the graph does represent a function.

$\{ (-5, -3), (-2, 0), (1, -3), (-2, -6) \}$ These points are on the line of the third graph on the next page. Any vertical line drawn through the circle of the graph cross in more than one place. Therefore, the graph does NOT represent a function.

Consider the other three graphs – which represent functions, which do not? Why?



Consider the 1st graph above. The domain is any x value along the real number line. In fact, the domain is all the real numbers from negative infinity to positive infinity.

This is written as the interval: $(-\infty, \infty)$

Which of the following relations (given as lists of ordered pairs) represent function?

Plot them and use the vertical line test if desired.

$\{(1,3), (1,5), (3,6)\}$

$\{(4,6), (5,7), (6,8)\}$