MCR3U Functions vs. Relations Name: _____

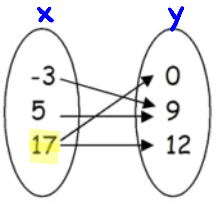
Relations are sets of ordered pairs. There are no restrictions on the input/output values.

Examples:

{(-8, 2), (-8, 1), (0, 2)} ← This is NOT a function.

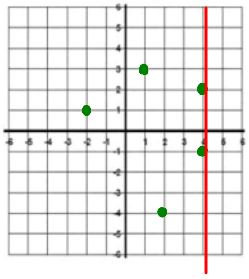
Set of ordered pairs: {(-8, 2), (-3, -1), (0, 2)} ← This is a function.

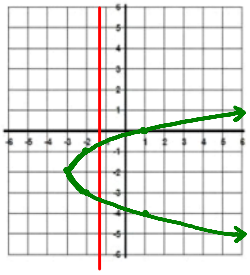
Mapping of ordered pairs:



This is NOT a function.

Graphs:





These are NOT functions. They fail the vertical line test.

If a relation has exactly one *y*-value (output) for every *x*-value (input), then it is called a function.

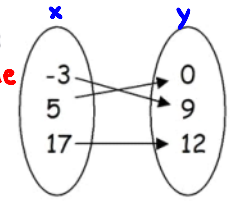
Examples:

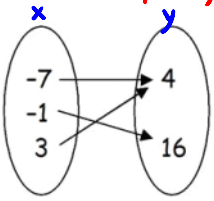
Set of ordered pairs: {(-8, 2), (-3, -1), (0, 7), (6, -4), (10, 5)}

y-values can repeat, but x-values cannot

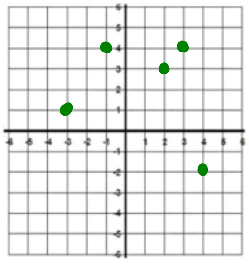
Mapping of ordered pairs:

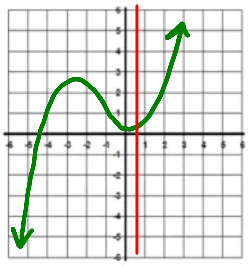
each x-value can only have one arrow





Graphs:





Functions pass the vertical line test.