Section 3.2 Introduction to Functions

A RELATION is a set of ordered pairs.

The DOMAIN of the relation is the set of all first components of the ordered pairs. The RANGE of the relation is the set of all second components of the ordered pairs.

A set of ordered pairs can also be represented by a graph of points.

A FUNCTION is a relation in which each first component in the ordered pairs corresponds to *exactly* one second component.

No *x*-value is paired with more than one *y*-value.

#s 1 - 18: Find the domain and range of each relation. Determine whether or not the relation is a function.

In a graph, a FUNCTION will never have two or more points are stacked above one another, hence the VERTICAL LINE TEST:

If no vertical line can be drawn so that it intersects a graph more than once, the graph is the graph of a function.

Function Notation
To denote that y is a function of x, we can write

$$y = f(x)$$

Reads like "f of x"

We say that y depends on x, because every x-value in the domain determines a y-value.

Note that the x-values don't necessarily depend on the y-value, since we can have different x-values being associated with the same y-value, and still have a function.