Section 2.2. The Graph of a Function

Note. In this section we identify the graph of a function and obtain information from or about the graph of a function.

Definition. When a function is defined by an equation in x and y, the *graph* of the function is the set of points (x, y) in the xy-plane that satisfies the equation.

Note. By the definition of function, there is only one y corresponding to a given x. From this, we have the following.

Theorem 2.2.A. Vertical Line Test. A set of points in the xy-plane is the graph of a function if and only if every vertical line intersects the graph in at most one point.

Examples. Page 65 Numbers 14 and 18.

Note. If (x, y) is a point on the graph of a function f, then y is the value of f at x; that is, $y = f(x)$. Also if $y = f(x)$, then (x, y) is a point on the graph of f. We illustrate the power of this observation with some examples.

Example. Page 65 Number 26.

Examples. Page 66 Number 32, Page 67 Number 38.

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