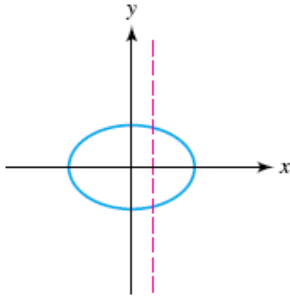


Terminology Section 1.3

Concept	Explanation	Examples										
Function	A function is a <i>relation</i> in which each valid input results in one output. The <i>domain</i> of a function is the set of valid inputs (x -values) and the <i>range</i> is the set of resulting outputs (y -values).	$f = \{(1, 3), (2, 6), (3, 9), (4, 12)\}$ The domain is $D = \{1, 2, 3, 4\}$ and the range is $R = \{3, 6, 9, 12\}$.										
Domain	When a function is represented by a formula, its domain is the set of all valid inputs (x -values) that are defined or make sense in the formula, unless stated otherwise.	$f(x) = \sqrt{x + 4}$ Domain of f : $\{x x \geq -4\}$ $g(x) = \frac{1}{x - 5}$ Domain of g : $\{x x \neq 5\}$										
Identifying graphs of functions	The vertical line test can be used to determine if a graph represents a function.	 <p>Not a function because a vertical line can intersect the graph more than once</p>										
Verbal representation of a function	Words describe precisely what is computed.	A verbal representation of $f(x) = x^2$ is "Square the input x to obtain the output."										
Symbolic representation of a function	Mathematical formula	The squaring function is given by $f(x) = x^2$, and the square root function is given by $g(x) = \sqrt{x}$.										
Numerical representation of a function	Table of values	A <i>partial</i> numerical representation of $f(x) = 3x$ is shown. <table border="1" data-bbox="1089 1354 1377 1444"> <tbody> <tr> <td>x</td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>$f(x)$</td> <td>0</td> <td>3</td> <td>6</td> <td>9</td> </tr> </tbody> </table>	x	0	1	2	3	$f(x)$	0	3	6	9
x	0	1	2	3								
$f(x)$	0	3	6	9								
Graphical representation of a function	Graph of ordered pairs (x, y) that satisfy $y = f(x)$	A graph of $f(x) = 2x$ is shown. Each point on the graph satisfies $y = 2x$. 