

Grade 8
Unit 4 Vocabulary

Proportional vs. Non-Proportional Relationships

(8.5A, 8.5B, 8.5F, 8.5G, 8.5H, 8.5I, 8.9A)

Linear Equation – an equation with a graph that is a line. Linear equations can be written in slope-intercept form, $y = mx + b$, where m is the slope and b is the y-intercept.

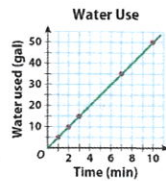
$$Y = mx + b$$

slope
 $y = mx + b$
 y-intercept

Proportional – a relationship between two variables in which the ratio of one variable to the other is constant. One variable is always a constant value times the other. The relationship must include (0, 0).

A graph or table that included the origin (0,0)

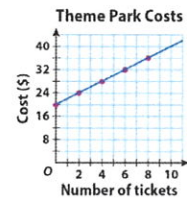
x	0	5	
y	0	8	32



Non-Proportional – a relationship between two variables in which the ratio of one variable to the other is NOT constant. It does NOT pass through the origin.

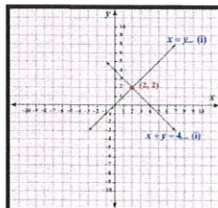
A graph or table that DOES NOT include the origin (0,0)

x	y
0	6
3	9
6	12
9	15
12	18



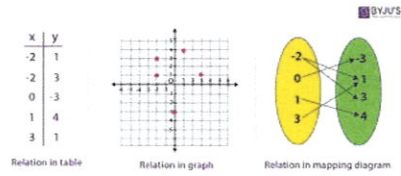
Simultaneous Equations – two or more equations that have the same set of variables.

Two lines that intersect on a graph



Relation – a set of inputs and outputs; a set of ordered pairs.

A set of ordered pairs



Function— a relation where each input, x , has exactly one output, y ; x -values cannot repeat.

A set of ordered pairs with no repeated x

x	$f(x)$
-2	-8
-1	-3
0	-2
1	4
2	1
3	3

Function notation— a way of writing equations where ' $f(x)$ ' replaces ' y '. It is read as, ' f of x '. In function notation, your input is still x , and $f(x)$ is the output.

Changing $y =$ to $f(x) =$

Equation

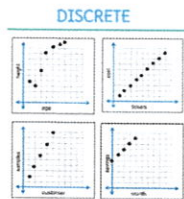
$$y = 2x - 3$$

Function Notation

$$f(x) = 2x - 3$$

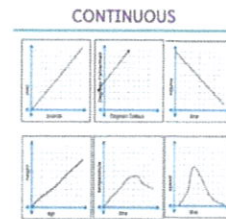
Discrete Graph— graphs that are made up of unconnected points.

A graph of separate points



Continuous Graph— graphs that are connected lines or curves.

A graph of connected points



Vertical Line Test— used to determine if a relation is a function. If a vertical line crosses the graph at more than one point, it is not a function.

Vertical line used to see if a graph is a function

Vertical Line Test

