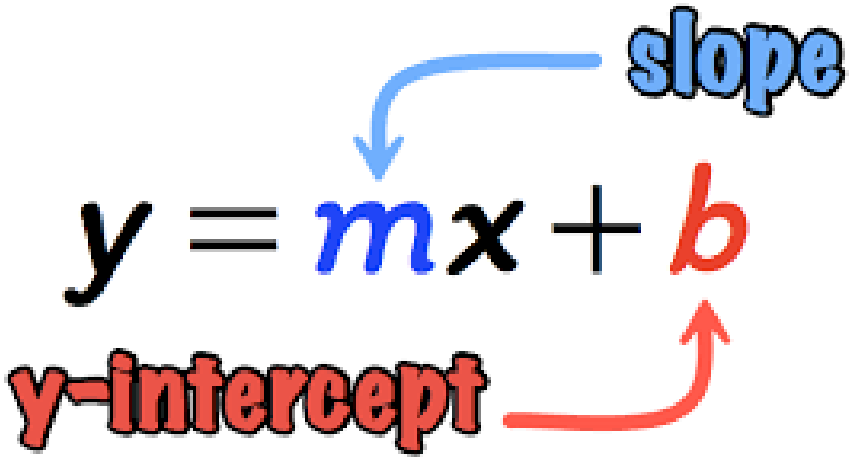
Grade 8
Unit 4 Vocabulary

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.

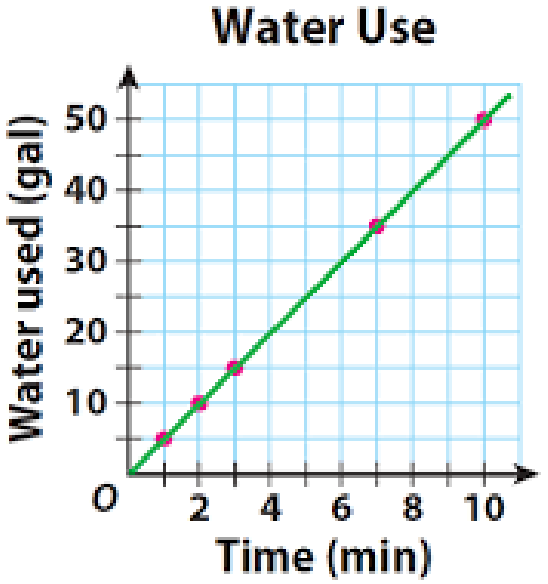
$$Y = mx + b$$



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)

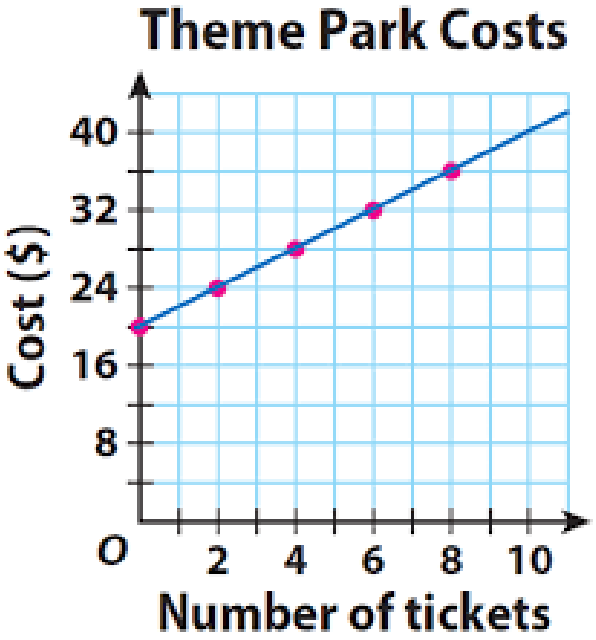
x	0	5	
y	0	8	32



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.

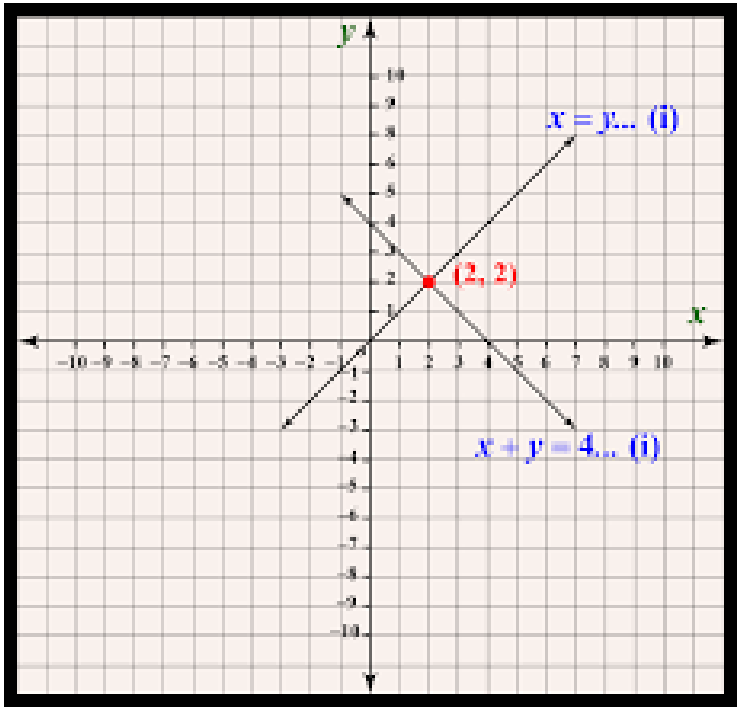
A graph or table that DOES NOT included the origin (0,0)

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



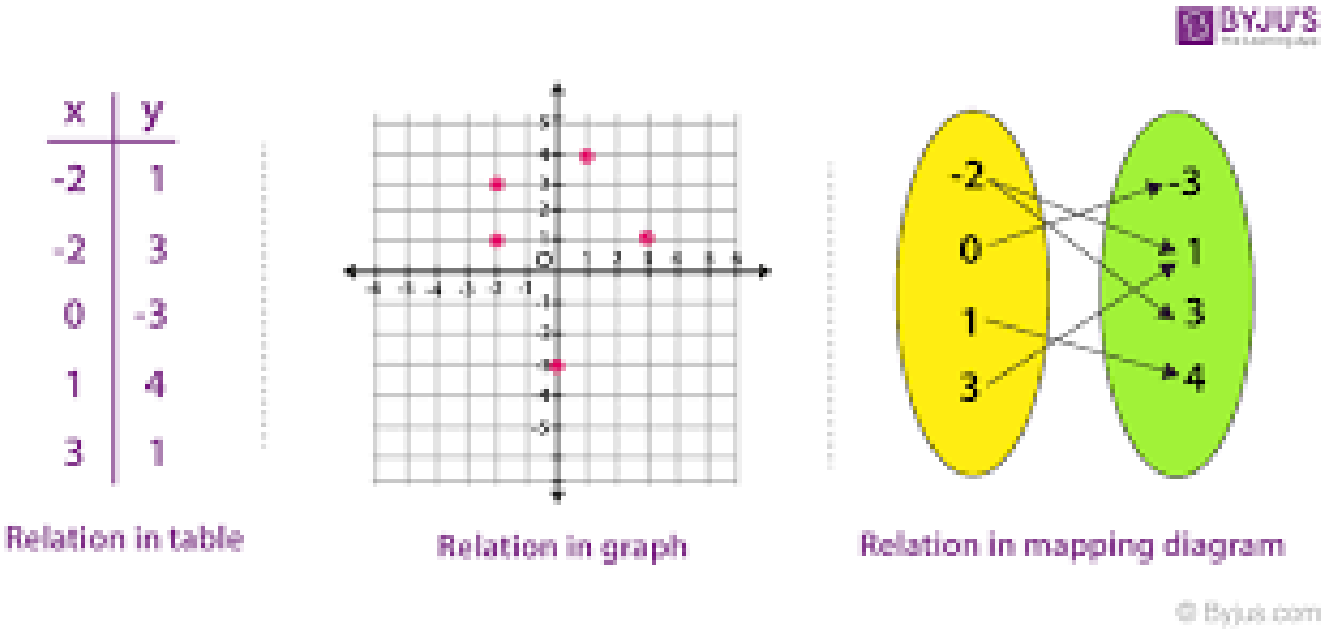
Simultaneous Equations – two or more equations that have the same set of variables.

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

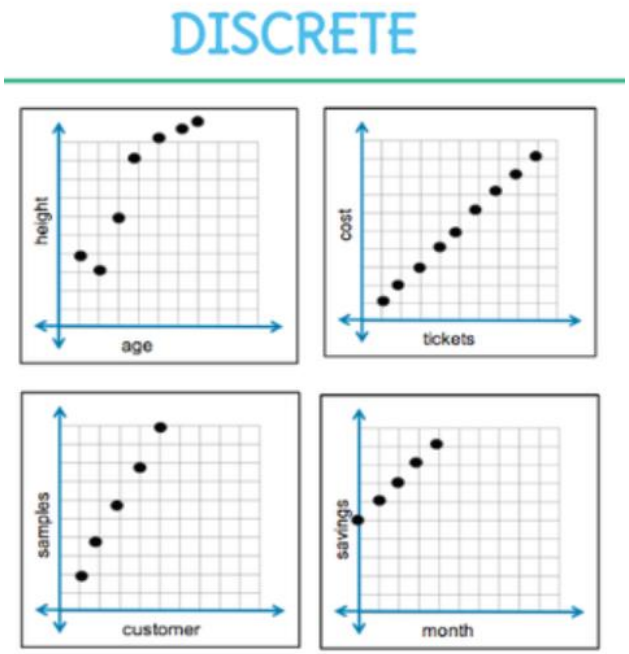
$y = 2x - 3$

Function Notation

$f(x) = 2x - 3$

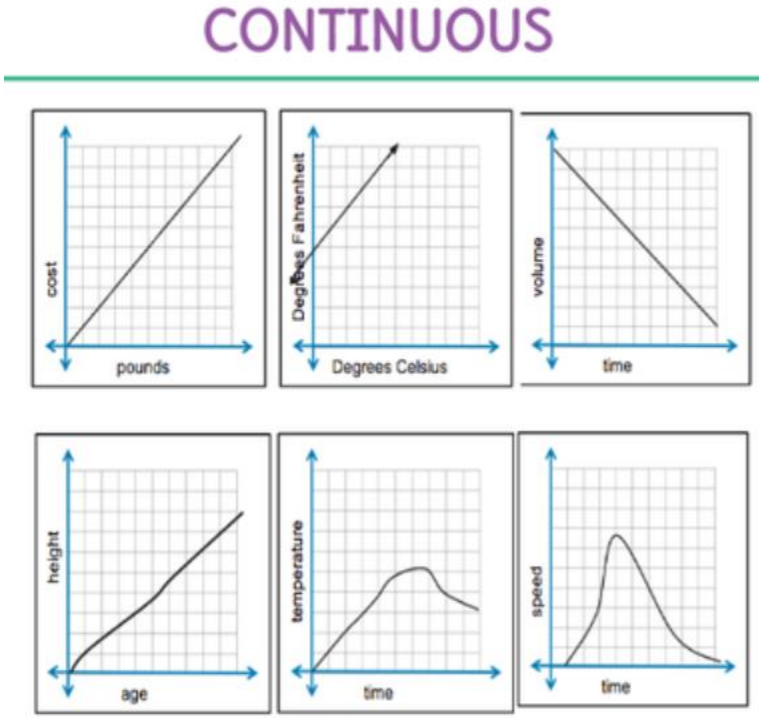
Discrete Graph– graphs that are made up of unconnected points.

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