Here are some helpful key terms for you to know as well as important formulas. Feel free to let me know if you have any questions or anything you think should be added to this doc. Maybe everyone can come up with some examples of topics that we can add to the doc too!

This is also a good source of information:

What types of numbers are there?

> Natural numbers: Numbers found in nature. These are whole positive numbers excluding zero.
>> Symbol used to represent natural numbers:
>> Here are some examples of natural numbers:
>>> 1, 2, 3, 100, 1000, 1001
> Integers: whole numbers including positive, negative, and zero.
>> Symbol used to represent integers:
>> Here are some examples of integers:
>>> -3, -2, -1, 0, 1 tegeme

Some words to know:

Vertical: up and down, or what is typically known as the y-axis
Horizontal: side to side, or what is typically known as the x-axis
Intercept: a point where a line meets or crosses an axis. You can find these when x or y are zero.
x=0 gives us the y intercept
y=0 gives us the x intercept
Domain: how far the graph goes along the hor

Coefficient: the number placed in front of a vari

Horizontal lines have a zero slope
Formula of slope:

$$\text{slope} = m = \frac{\text{change in } y}{\text{change in } x} = \frac{y_2 - y_1}{x_2 - x_1}$$

Numerator: the number on top in a fraction
> The fraction, x/y has a numerator of x
> For slope it is called the rise, vertical movement of the line.

Denominator: the number on bottom in a fraction
> The fraction, x/y has a denominator of y
> For slope it is called run, horizontal movement of the line.

Vertical Line Test: when trying to determine if a graph is a function or not, if at any point on the graph you draw a vertical line and it touches your graph at more than one point it is NOT a function.

Quadrants: a graph with 2 axis has 4 quadrants, QI, QII, QIII, QIV.

Quadrant II   Quadrant I
(-, +)   (+, +)
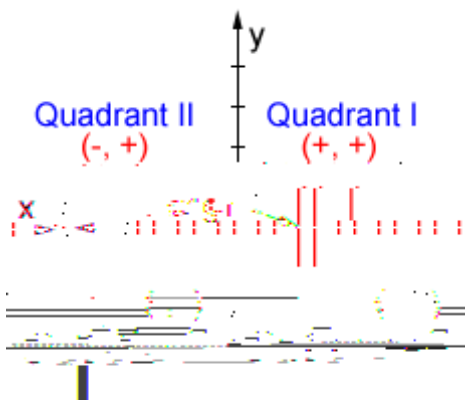
Ordered pair: written as (x,y) typically anr

Symbols and how to use them:

> Greater than: >
> > When comparing numbers and using this symbol the larger number goes on the left.
> Greater than or equal to:
> > When comparing numbers and using this symbol the number that is larger or equal to the other one goes on the left.
> Less than: <
> > When comparing numbers and using this symbol the smaller number goes on the right.
> Less than or equal to:
> > When comparing numbers and using this symbol the number that is smaller or equal to the other one goes on the right.
> Open dot:
> > Used on graphs when showing a point on it that the function gets really close to but never reaches that number exactly.
> Parentheses: (   )
> > These can be used in several ways:
> > > Domain and Range when the number next to it is not included in the set, or for infinity.
> > > Ordered pairs
> > > PEMDAS- parentheses, exponents, division or multiplication, addition or subtraction
> > Symbols that mean the same thing:
> > > (   ) = > or < =
> Brackets: [   ]
> > How are these used?:
> > > Domain and Range when the number next to it is included in the set.
> > > Never used for infinity.
> > Symbols that mean the same thing:
> > > [   ] =   or   =
> Infinity: /-
> > Often used to show the Domain or Range of a graph.
> > It is not a number, but an idea. It implies that whatever you are talking about continues forever.
> > Parentheses can be used with infinity but not brackets.
> Dot:
> > This is used in place of x for multiplication. Now that we are using variables (often x) in our problems, we will use a closed dot to represent multiplication.
> Plus or Minus/Positive or Negative: ±
> > This represents most often that there is a positive and nethat there th r Minus/P

Both symbols indicate that we need to divide.

Squaring a variable: x^2 or y^2 or anything to the power of 2

This means we want to multiply the variable or number that is being squared by itself.

Ex. Let x= 4 $x^2=$ $(4)^2=$ 16

Ex. Let x= -1 X^2

Slope: m

Used when trying to find the equation of a line.

Rise / Run: the vertical movement / the horizontal movement

Union: U

Used to connect two sets, often used in range and domain when there is a gap in the graph and the numbers between are not included.

Manipulating Functions:

f(x): This is read as f of x, x is the input and f(x) (which can also be read as y) is the output.

f(g(x)) or (f g)(x): these can be read as f of g of x. In this instance the g(x) function is going to replace our x variable in the f(x) function.

CAUTION!!! Do not get this confused with multiplying functions.

Ex. $f(x)=x^2$ $g(x)=x+2$

WK H   Q X PZ   K   euuuuuhat wwit t.is crsi

Equation of a line:

$y = mx + b$

y is also written as f(x)

m is the slope

x is our variable

b is our y-intercept

Speed/Rate:

Speed/Rate = distance * time

Average Rate of Change:

[f(b)-f(a)]/(b-a)

f(b) is the output with value b, and f(a) is the output with value a

a and b are some x value

Slope of a line:

el

es se th esd   ondi xi e

Acronyms:

PEMDAS: parenthesis, exponents, multiplication, division, addition, subtraction

nrb-!   When solving problems we use this to tell us wheree it

FIRST　　　　　　　　　FOIL

$8x^2 - 12x$

Graphing Tips:

Typically when graphing your horizontal axis will be the x-axis and vertical axis will be the y-axis. A good way to remember this when we start using different variables is:

Horizontal Axis: this is the axis of your input
Vertical Axis: this is the axis of your output

When graphing a function the easiest way to begin your graph is to find your x and y intercepts.

Ex. (x,0) when y=0 what is x? (0,y) when x=0 what is y?