01 Graphing

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1 Introduction

When a graph is plotted, there is usually a way to translate the relationship between the x axis and the y axis. For example, if x represents time and y represents distance, then: $\frac{x}{y}$ represents *velocity.*

2 Cartersian Coordinate System

The (textitreference) point where the x axis and y axis meet is called the textitorigin.

Points on a graph are represented as textitordered pairs in the form (x, y). This will show the location of the point on the graph. This means that all locations on the graph will have a name - textbfthe ordered pair. There is exactly one ordered pair that is going to name that location. The sign (+ or -) gives direction to the name.

Every single point on the plane has exactly one name and every ordered pair has exactly on location.

This system - textitthe cartesian coordinate system was named after Rene Descartes - a philosopher and scientist from France.

3 Intercepts

A curve intercepts the x or y axis where it meets it. A textity-intercept is the place where a line or curve crosses, or touches, the y-axis - the vertical. An textitx-intercept is the place where a line or curve crosses, or touches, the x-axis - the horizontal.

4 Graphing an Equation

Given an equation:

$$y = 2x + 3$$

You can represent this on a graph. There will be infinite pairs to graph. So you can decide on pairs to represent:

x	y
0	3
2	7
-2	-1
3	9

The point $(0, 3)$ is the y-intercept The x-intercept is $(-1.5, 0)$

There are infinite points along the line. It is important to take note of the terms:

- ordered pair
- equation

Take another example:

$$y = -4$$

The y-intercept is $(0, -4)$ There is no x-intercept

It is always a good idea - when you get an equation - to look for the intercepts. Remember, the graph can cross an axis more than once - there can be more than 1 intercept on either axis.

A mixed number, also known as a mixed fraction, is a number that is made up of a whole number and a fraction. An example is: $2\frac{3}{4}$

An important point is to always analyse what is shown on the graph. What is shown by the x-coordinate and the y-coordinate.

NOT ALL RELATIONSHIPS ARE LINEAR.