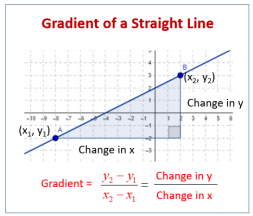
Year 9 Higher Topic 6

Topic title: Graphs

y = mx + c

y=mx+c is the general equation for a straight line graph. m is the gradient of the line. Ccis the point where the line intercepts the y axis.

The gradient of a line is calculated by drawing a triangle on the line and dividing change in y by the change in x.



What careers would use these skills?

Linear graphs are created from linear equations. Financial occupations often require the use of linear equations. Accountants, auditors, budget analysts, insurance underwriters and loan officers frequently use linear equations to balance accounts, determine pricing and set budgets. Linear equations used in financial occupations may also be used in creating family budgets as well. A financial planner, for example, uses linear equations to determine the total worth of a client's stocks.

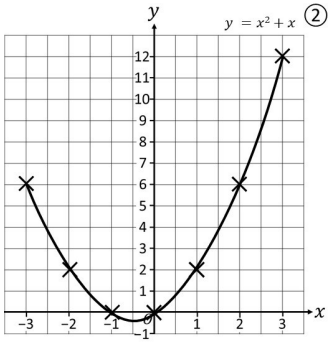
Plotting a graph

The example below can be applied to any equation.

Plotting Quadratic Graphs

Plot the graph of: $y = x^2 + x$

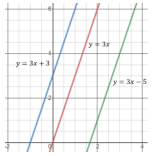
x	−3	−2	−1	0	1	2	3
x^2	9	4	1	0	1	4	9
x	−3	−2	−1	0	1	2	3
y	6	2	0	0	2	6	12



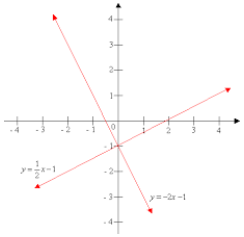
1) Split the equation into separate terms in the table.
2) Complete each row.
3) Total the columns
4) Use the x value with the y value as coordinates.

Parallel and perpendicular lines

Parallel lines have the same gradient but a different value for c as they will be crossing the y axis in a different place.



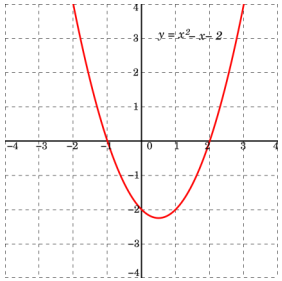
Perpendicular lines have reciprocal gradients.



Quadratic Graphs

A quadratic graph has a U or upside down U shape. There is one turning point in the graph. It will always contain an x^2 term in the equation of the graph.

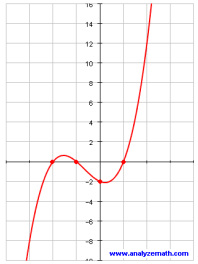
To plot a quadratic graph substitute in at least 5 values for x to generate y coordinates then plot.



Cubic Graphs

A cubic graph is an S shape. It has two turning points.

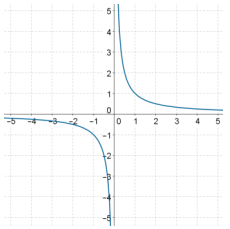
A cubic graph contains an x^3 term.



Reciprocal Graphs

A reciprocal graph never touches zero.

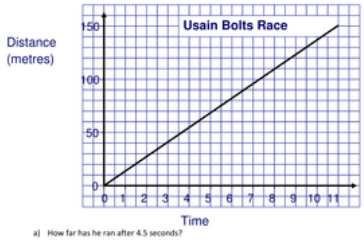
Equations of reciprocal graphs are in the form y=1/x



Real Life Graphs

Graphs can be used to represent a wide variety of situations.

a) How much does the bar of chocolate weigh?
b) How much does the chocolate weigh after 5 seconds?
c) How long does it take the for the chocolate bar to be eaten?
d) What is happening between 5 and 8 seconds?



a) How far has he ran after 4.5 seconds?