Student Activity 1d

Tables for each of the functions below are drawn on the next page of this document for $x \in \{-3, -2, -1, 0, 1, 2, 3\}$.

Fill out the tables for each function first so that you can decide on a scale which will suit all the functions when plotting a graph.
Plot all the graphs **using the same axes and scales** on the grid given below.   Verify the shape of each graph by calculating y values of points, between those plotted, and comparing the answers with the y values of the same points given by your graph.
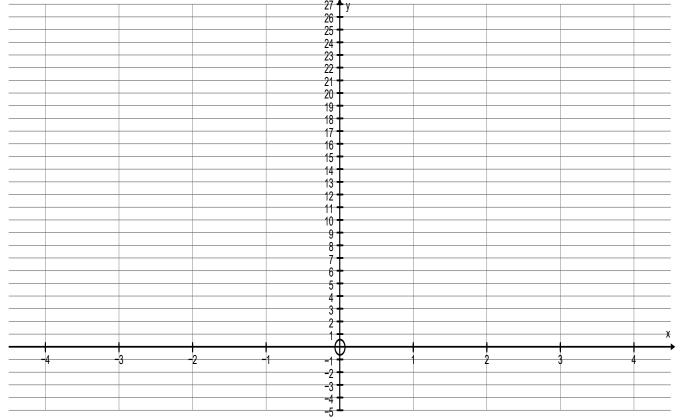
Polynomial in the form $f(x) = ax^2 \pm c$	State the shape of the graph and whether it opens upwards or downwards	x − intercepts (algebraic method and using the graph)	y − intercept (algebraic method and using the graph)	Maximum/ minimum point as an ordered pair and labelled as max or min	Real root(s) of f(x) =0	Equation of the axis of symmetry	f (2.7)	Solve f(x) = 8	For what x values is f(x) positive i.e. $f(x) > 0$?	For what x values is f(x) negative i.e. $f(x) < 0$?	For what x values is f(x) increasing?	For what x values is f(x) decreasing?
$y = x^2$												
$y = 3x^2$												
$y = 3x^2 - 4$												
Your own example												

1. What is the effect of the constant a on the graph of the function $f(x) = ax^2 \pm c$? Explain

2. What is the effect of the constant c on the graph of the function $f(x) = ax^2 \pm c$? Explain

Student Activity 1d

Project Maths
Tionscadal Mata
Development Team

Draw the graph of $y = x^2$ using a black marker and use different coloured markers to draw the other curves.

Label all the graphs clearly.

x	$y = x^2$	(x, y)

x	$y = 3x^2$	(x, y)

x	$y = 3x^2 - 4$	(x, y)

x	$y =$	(x, y)