Student Activity 1c

Development Team

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** using the grid given on the next page.

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 $f(x)=x^2 \pm c$	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?
$y=x^2$												
$y=x^2+8$												
$y=x^2-8$												
$y=x^2+2$												

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

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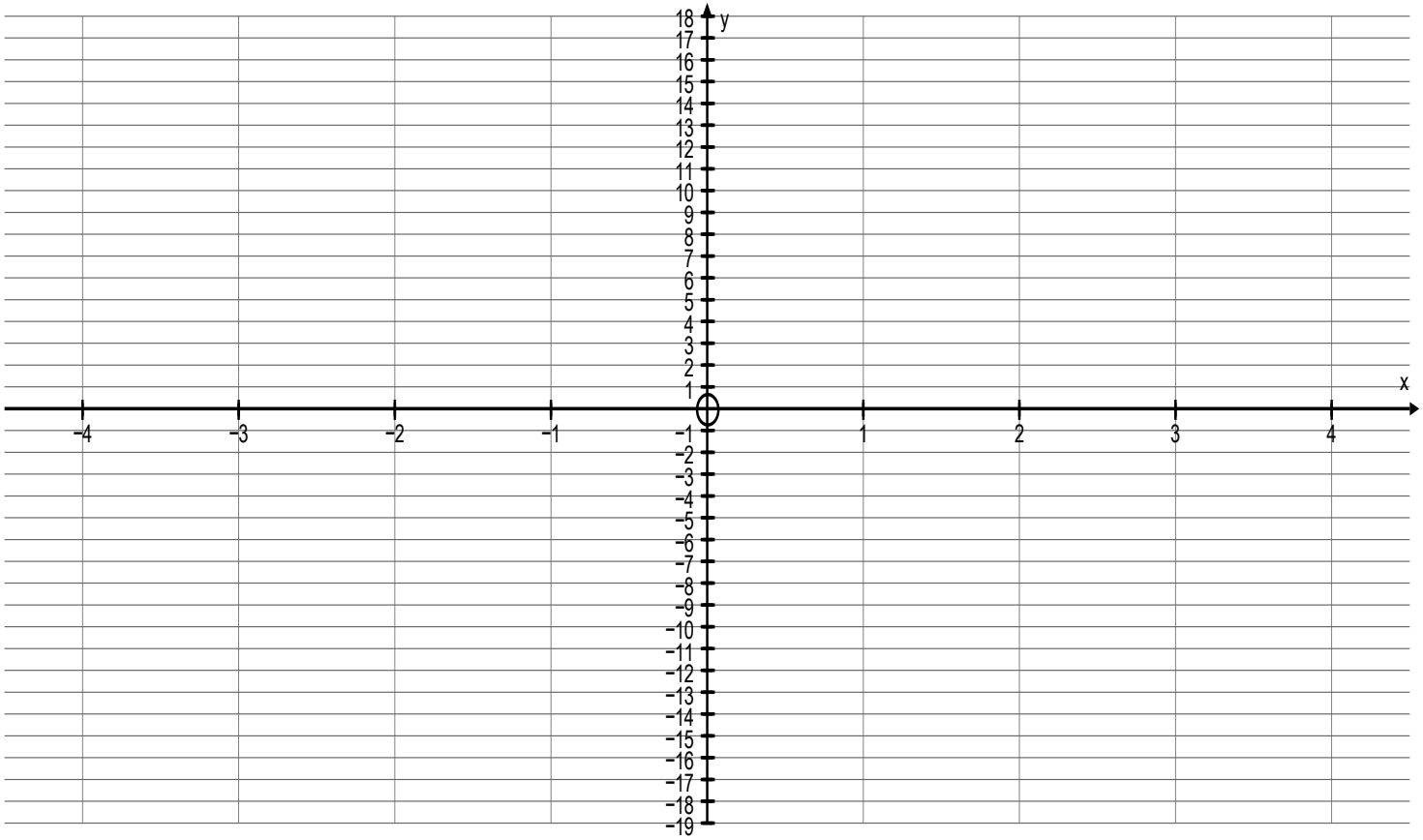
Project Maths Tionscadal Mata Development Team

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	$y = x^2 + 8$	(x, y)

x	$y = x^2 - 8$	(x, y)

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