***Graphs***

***Investigation***

*y = a(x + b)(x + c)*

**Task**

You are to investigate graphs of the form: y = a(x + b)(x + c) for different values of a, b and c.

**Start simple:**Try values of 0 or 1

**Work systematically:**

Only change one value at a time

**DO**

Enough to be able to predict the shape of the graph for any values of a, b and c

**DON’T**

Do endless examples once you know what’s going on

**WRITE** **UP**

Your findings, using algebra to generalise your results.

**Assessment**

Your work is assessed for 3 different skills:

* how you tackled the problem
* communication
* mathematical reasoning

The detailed criteria is shown below

**THE MOST IMPORTANT THING IS TO EXPLAIN CLEARLY ALL THE WAY THROUGH WHAT YOU ARE DOING AND WHY YOU ARE DOING IT**

ASSESSMENT CRITERIA

Tackling problems

* introducing your own questions to investigate
* trying different approaches, deciding which to reject and which to follow
* co-ordinating a number of features or variables
* working independently on a new area of maths

Communication

* making consistent use of mathematical symbols
* using mathematical language and symbols accurately
* communicating efficiently to present a concise, reasoned argument

Mathematical reasoning

* showing a grasp of the mathematical structure of the task in justifying results
* commenting constructively on findings, and making further progress as a result
* justifying solutions to problems involving more than one variable providing rigorous justification, argument or proof