Student Activity 5(ii)

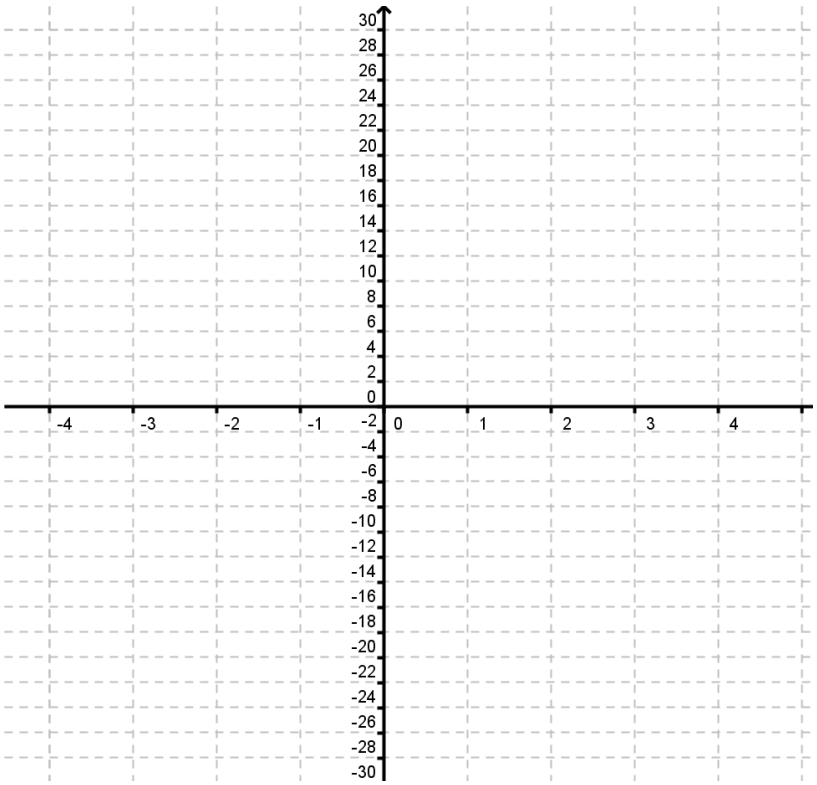
Plot the following graphs using the same axes and scales where $x \in \{-3, -2, -1, 0, 1, 2, 3\}$

(Use the "Table" mode on the calculator and verify the y values you calculate - optional)

How does the graph of $y = x^3$ compare with the graph of $y = x^2$? Use a dynamic geometry software package to check your graph.

(i) $y = x^3$	(ii) $y = x^3 - 2$
(iii) $y = x^3 + 2$	Investigate the graph of a similar cubic function

x	$y = x^3$	$y = x^3 + 2$	$y = x^3 - 2$	
-3				
-2				
-1				
0				
1				
2				
3				



(i) What is the effect of c on the graph of $y = x^3 + c$?

(ii) How many real roots has $y = x^3 + 2$?

(Link to complex numbers - find all the roots)

(iii) For what values of x is the graph of $y = x^3 + 2$ increasing?

(iv) For what values of x is the graph of $y = x^3 + 2$ positive?