Student Activity 6

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

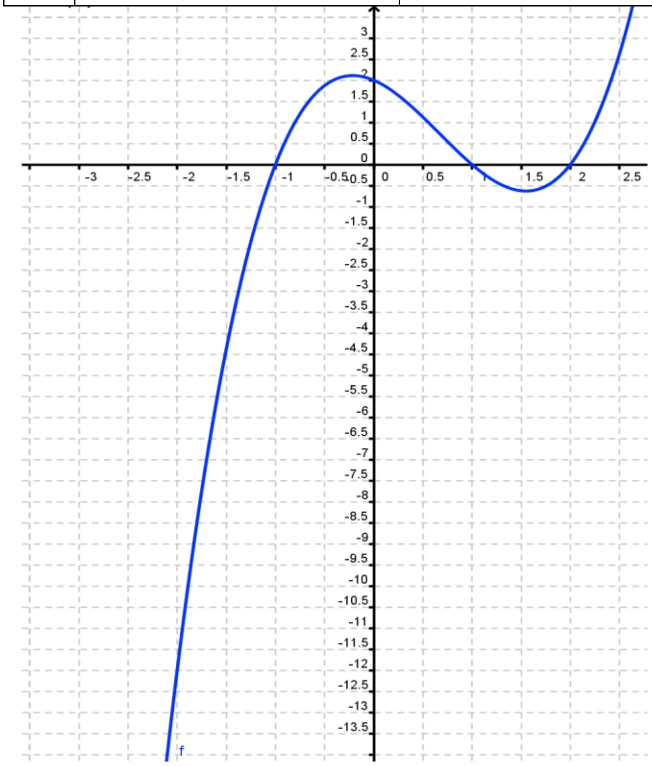
(Use the "Table" mode on the calculator and verify the y values you calculate - optional)

the cubic functions $f(x) = x^3 - 2x^2 - x + 2$ and $g(x) = (x+1)(x-1)(x-2)$ fill in the table below.

What do you notice?

Multiply out the factors of g(x) to verify your conclusion. Plot the points on the graph below or on the next page.

x	$f(x) = x^3 - 2x^2 - x + 2$	$g(x) = (x+1)(x-1)(x-2)$
-2		
-1.5		
-1		
-0.5		
0		
1		
1.5		
2		
2.5		



What is another way of writing $f(x) = x^3 - 2x^2 - x + 2$?

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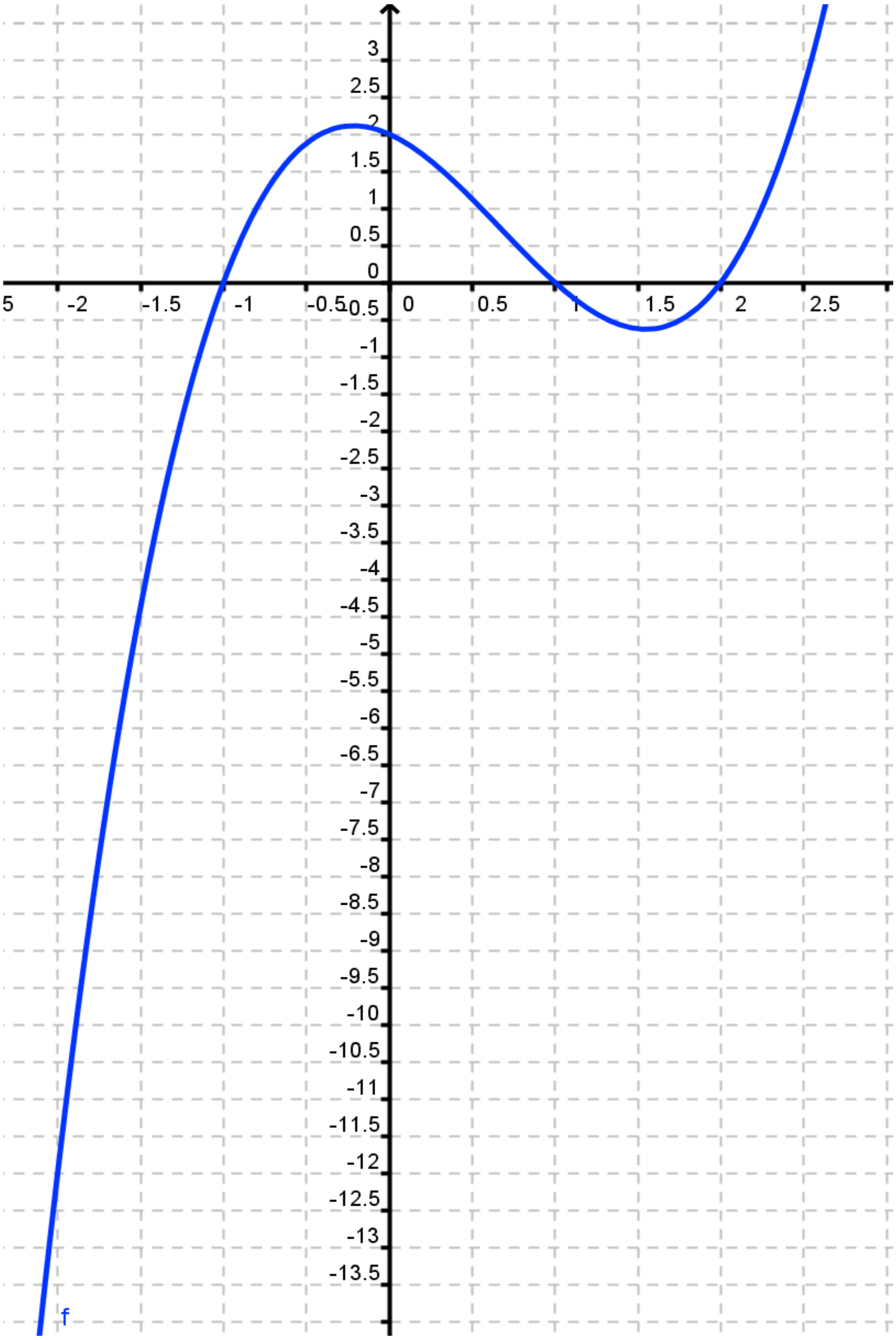

Fill in the table below for $y = x^3 - 2x^2 - x + 2$

$y = 0$ (roots)	
Local maximum point (approx)	
Local minimum point (approx)	

Sketch the graph of $h(x) = -f(x)$ using the axes and scales above. Fill in the table below for $h(x)$.

Which form of a cubic equation allows us to identify to identify the roots by inspection of the equation?

What transformation of the plane maps $h(x)$ onto f(x)?