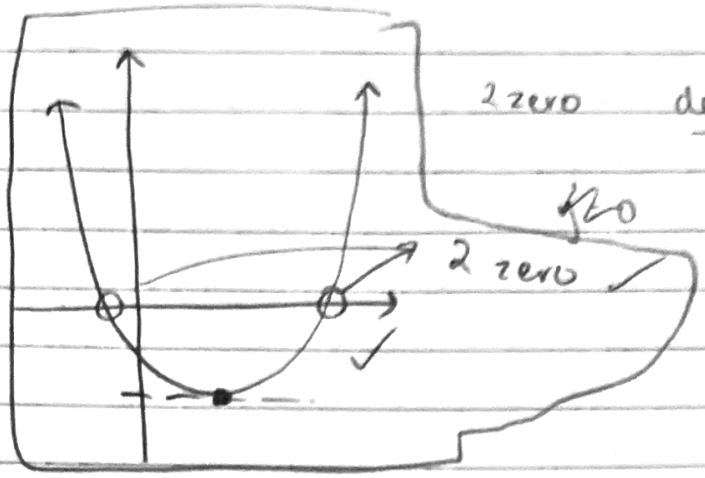
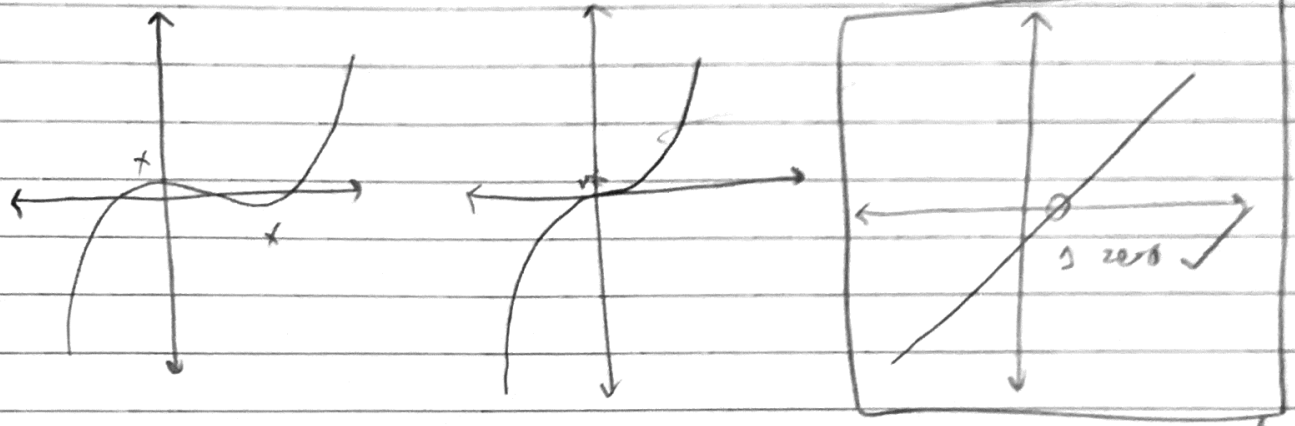
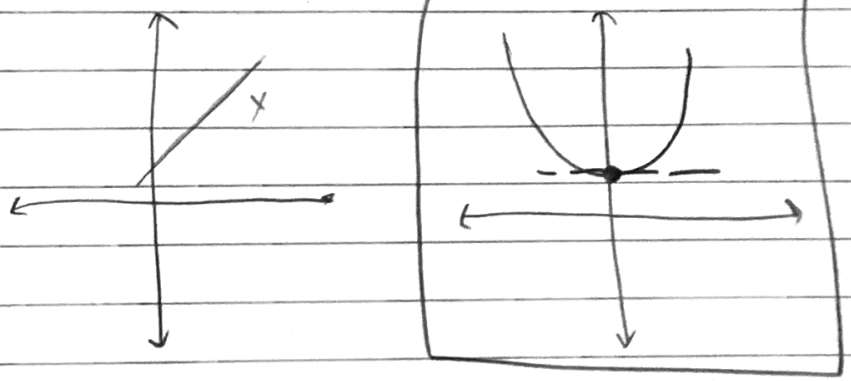
1. 

$y = x^2 - 4$

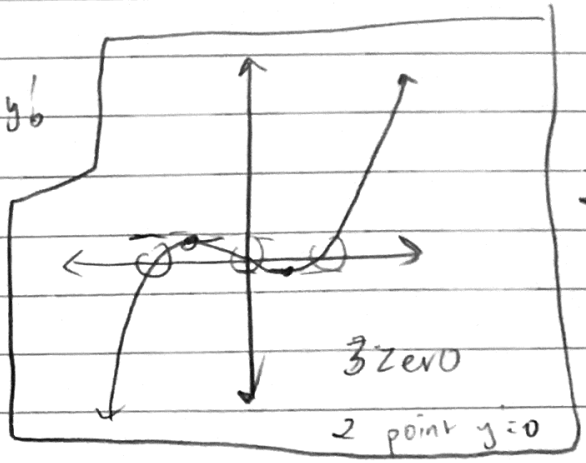
2. 

$y = x - 4$

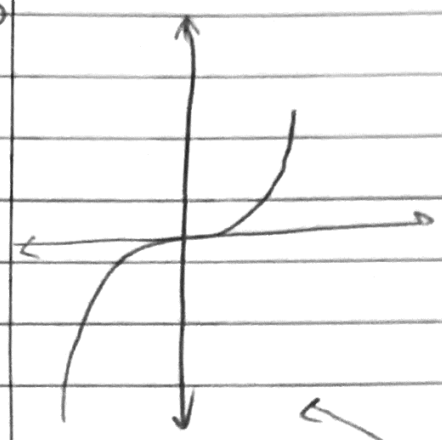
3. 

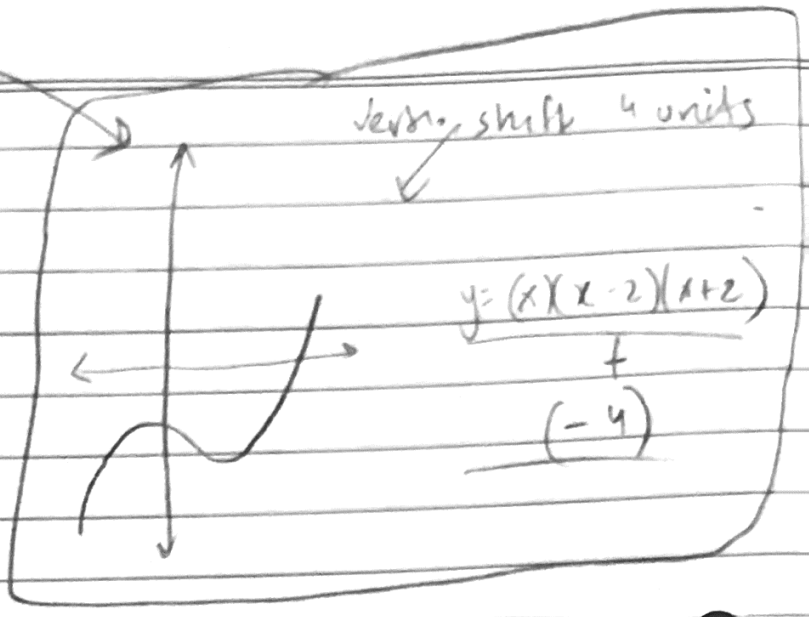
$y = x^2 + 4$

4. Cubic easy!



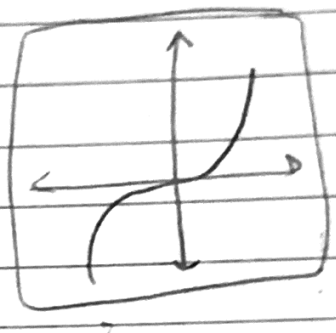
$y = (x)(x-2)(x+2)$

7. 

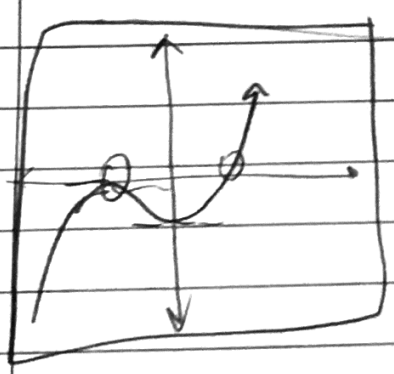


6. This would work now

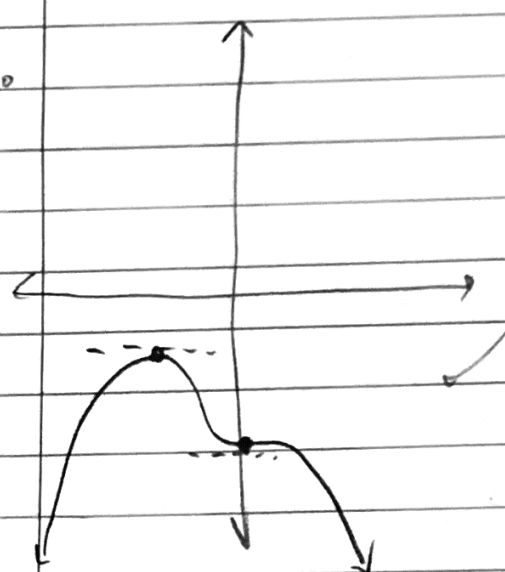
$y = x^3$



#6) Repeated root + one root

5. 

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

8. 

How to represent ?!?!?
in equation

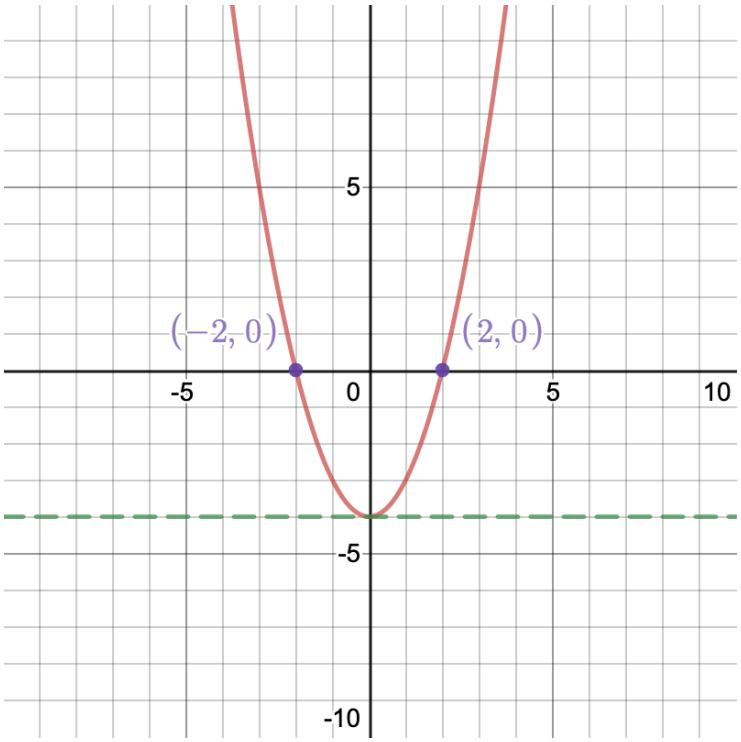
A combination
of $x^{even} + x^{odd}$ + shift

Ex. $x^4 + x^3 + 1$

Curve Hunter

Mahdi Raza Khunt
Mahatma Gandhi International School

Wednesday, 27 January 2021



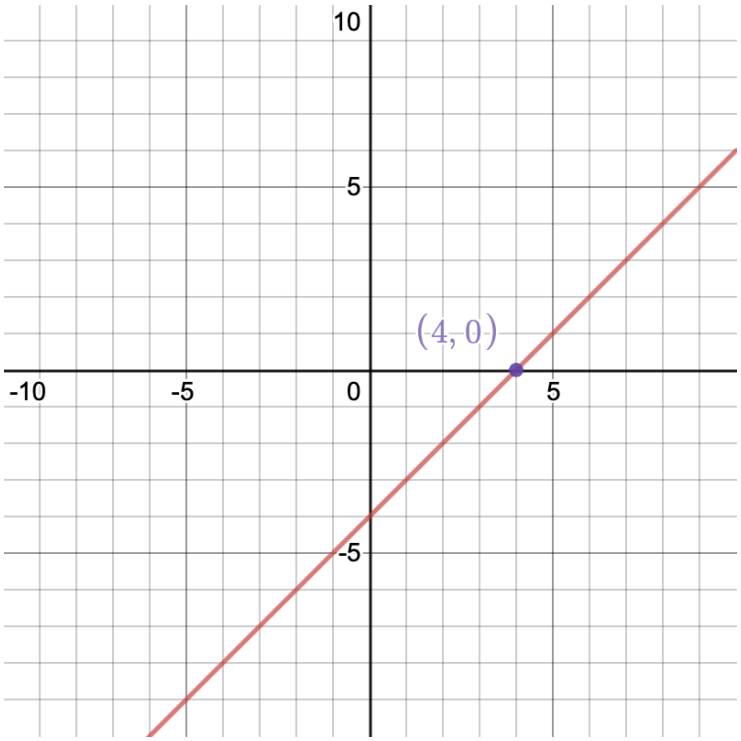
Graph 1

The equation is $y = x^2 - 4$

The two zeros are -2 and 2

And the local minimum with zero gradient is on the line $y = -4$

This satisfies the condition "A continuous curve with exactly **one point with zero gradient** and exactly **two zeros**."



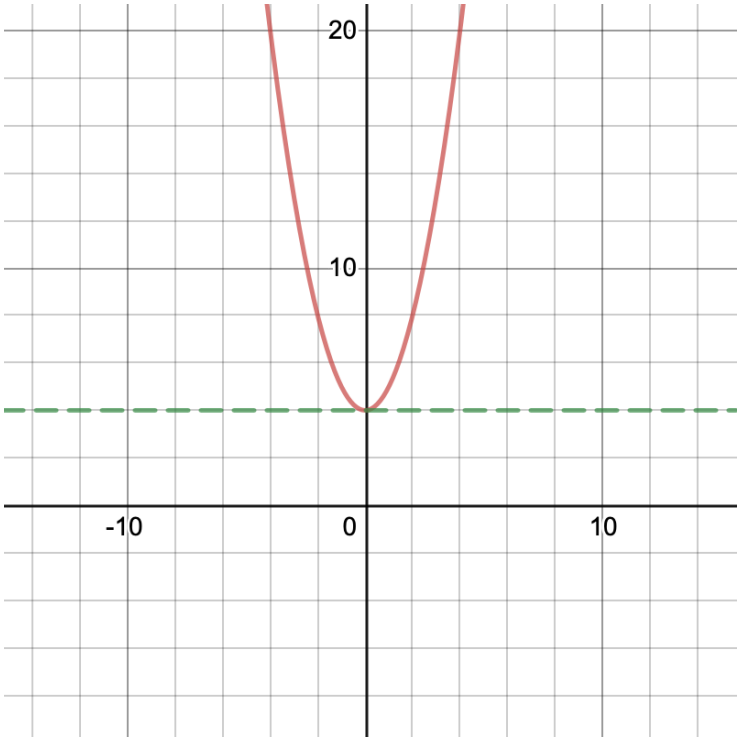
Graph 2

The equation is $y = x - 4$

The single zero is 4

No point with zero gradient

This satisfies the condition "A continuous curve with **no points with zero gradient** and exactly **one zero**."



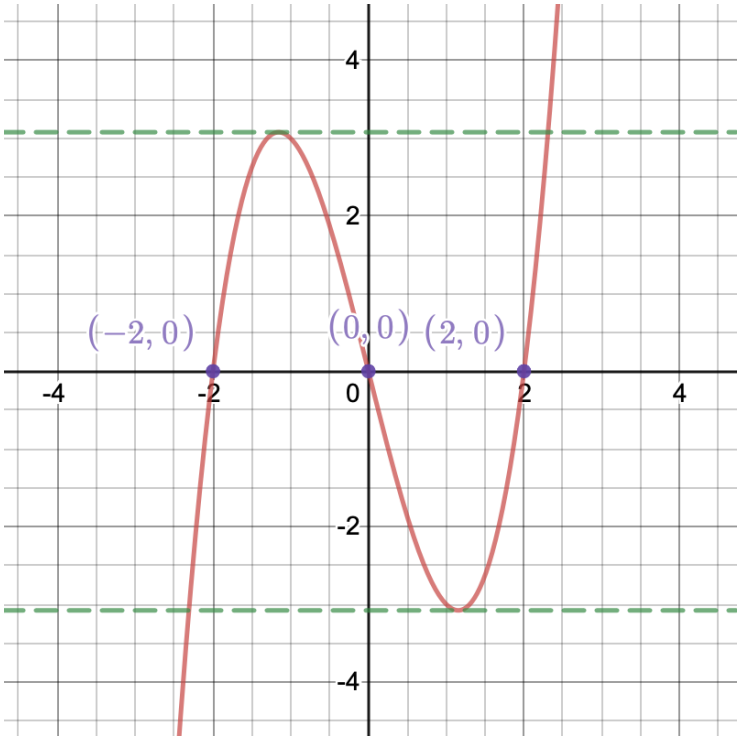
Graph 3

The equation is $y = x^2 + 4$

No zeros

And the local minimum with zero gradient is on the line $y = 4$

This satisfies the condition "A continuous curve with exactly **one point with zero gradient** and **no zeros**."



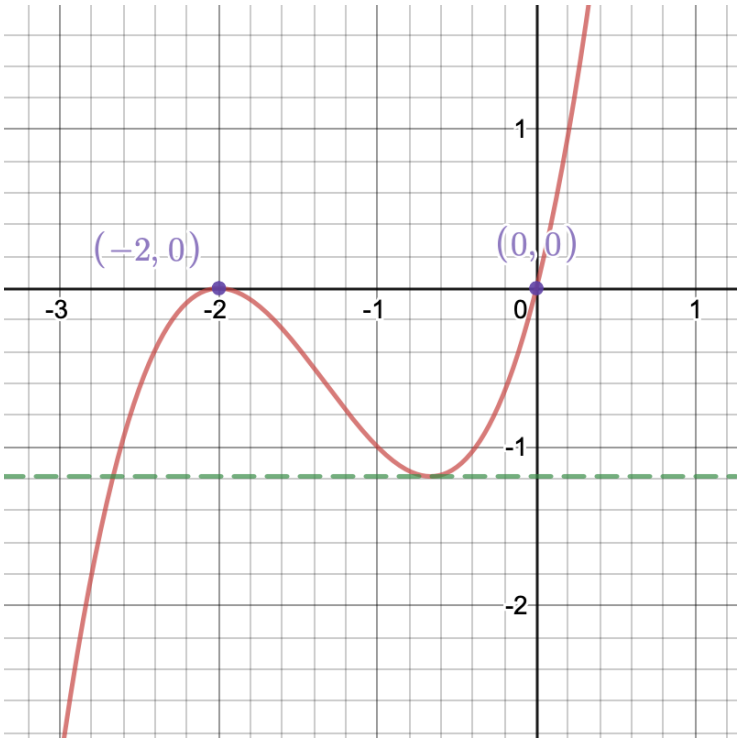
Graph 4

The equation is $y = (x + 2)(x)(x - 2)$

The three zeros are -2, 0 and 2

Two point with zero gradient

This satisfies the condition "A continuous curve with exactly **two points with zero gradient** and **exactly three zeros**."

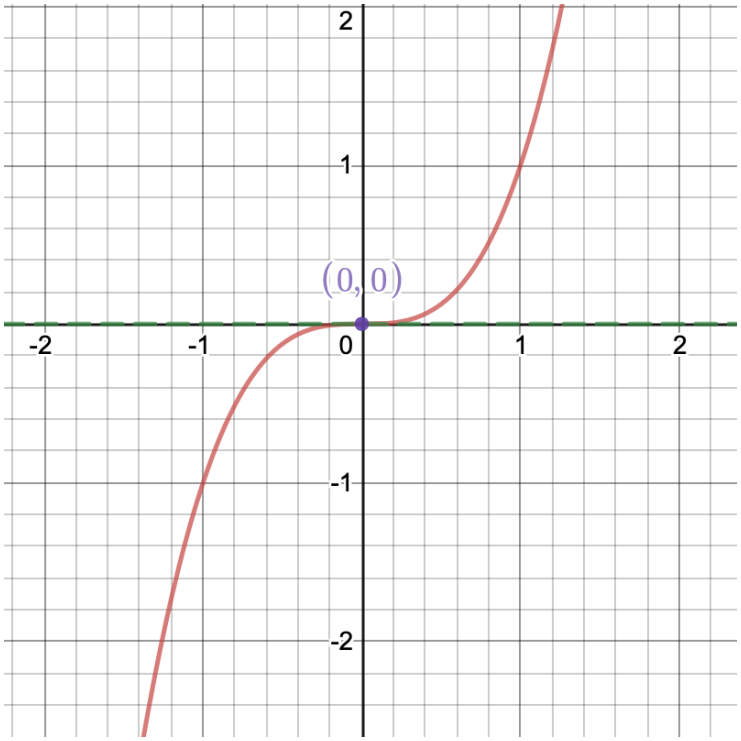


Graph 5

The equation is $y = (x)(x + 2)(x + 2)$

The two zeroes are 0 and 2, where 2 is a repeated root. Is this discarded though? Because this curve has total 3 roots.

One point with zero gradient

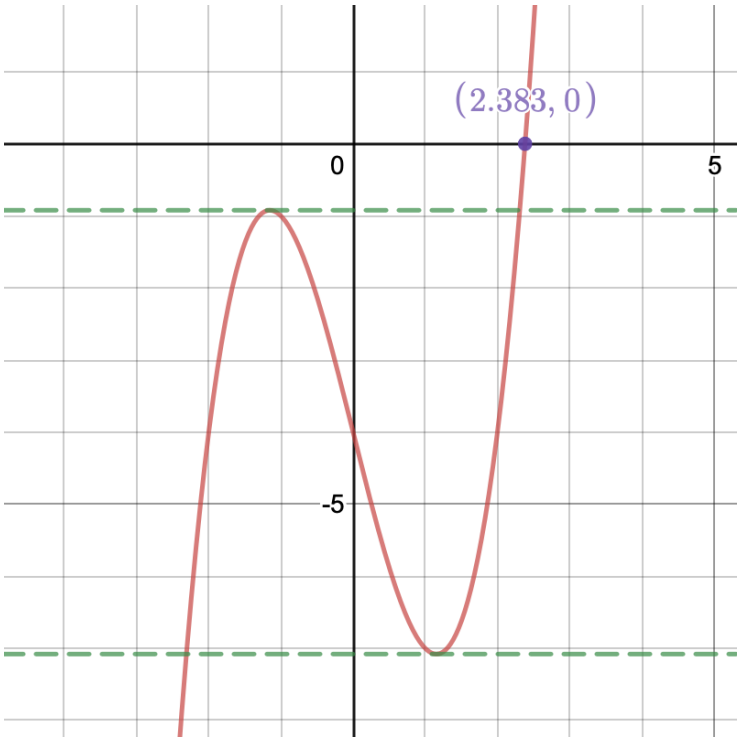


Graph 6

The equation is $y = x^3$

The single zero is 0

One point with zero gradient at $y = 0$



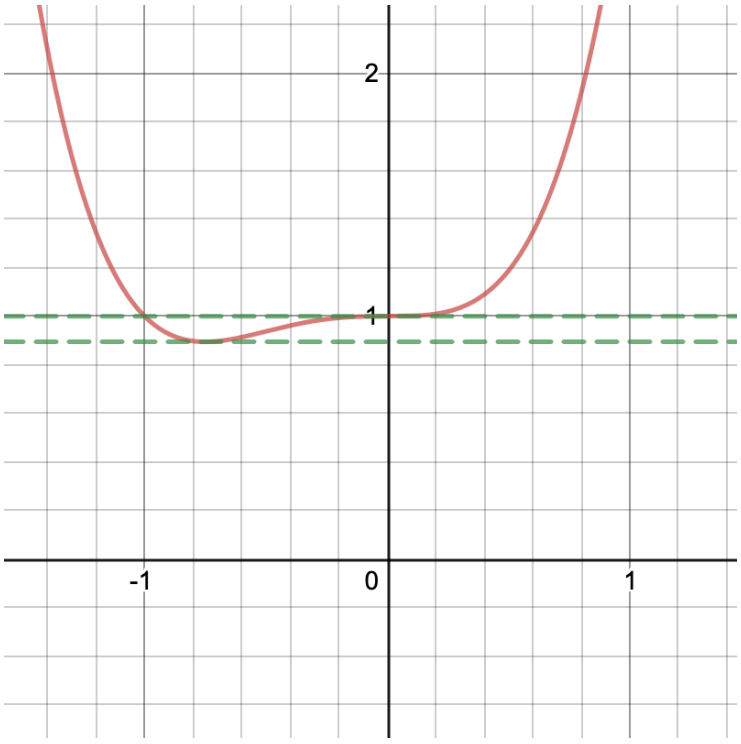
Graph 7

The equation is
$y = (x)(x-2)(x+2)+4$

A vertical shift of 4 units from the fourth graph

A single zero is 2.38

Two point with zero gradient



Graph 8

The equation is $y = x^4 + x^3 + 1$

No zero

Two point with zero gradient