

The general cubic function (4E)

Sunday, 25 February 2018 5:58 pm

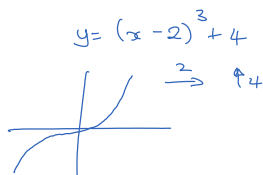
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RECAP

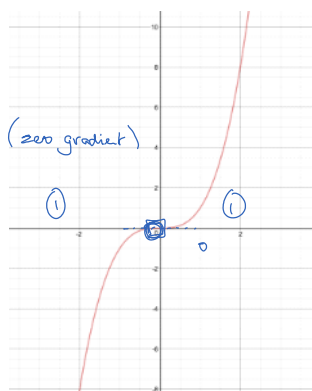
Cubics are pretty funky.
They have a number of interesting properties.

FUNKY PROPERTIES

- 1 Cubics may cross the x-axis in one, two or three places.



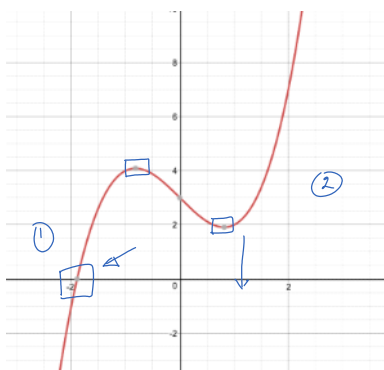
★ Work to be completed at the end of teaching:
Methods 3&4 Textbook
Exercise 4E
Questions 3, 4



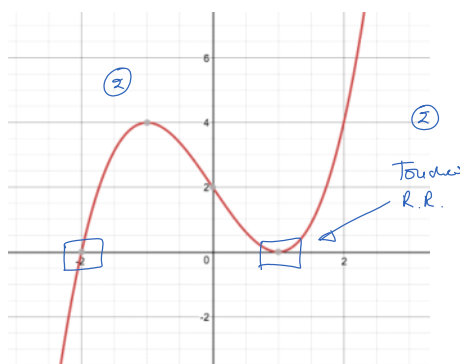
$y = x^3$



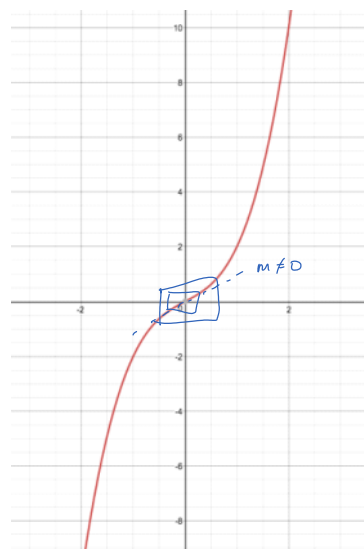
$y = x^3 - 2x$



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



2. Cubics don't have to have a point where the gradient is zero



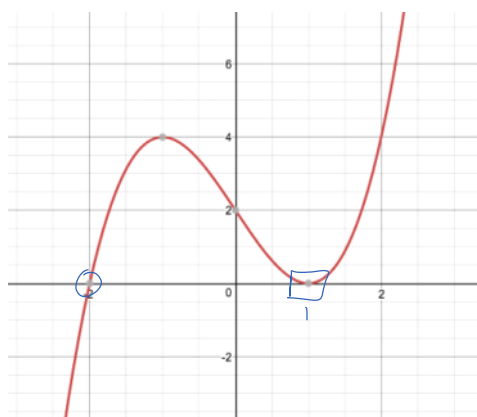
$y = x^3 + x$

They can also have zero, one or two turning points.

3. Turning points do not have to be symmetrical like they are in quadratics.

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4. Repeated roots are possible with cubics. This means the graph just touches the x-axis.



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



$$y = (x+2)(x-1)^2$$

$$\begin{aligned} y &= (x+2)(x^2 - 2x + 1) \\ &= x^3 - \cancel{2x^2} + \cancel{2x^2} - 4x + 2 \\ &= x^3 - 3x + 2 \end{aligned}$$