

Graphing Polynomials (3.4)

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day 6

Quiz 4

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#W: p133#6b, 12, 13

13. The product of four integers is $x^4 + 6x^3 + 11x^2 + 6x$, where x is one of the integers. What are possible expressions for the other three integers?

$$x(x^3 + 6x^2 + 11x + 6)$$

$$x(x-1)(x+2)(x+3)$$

6. Factor fully.

- a) $x^3 - 2x^2 - 9x + 18$
b) $t^3 + t^2 - 22t - 40$

12. When a certain type of plastic is cut into sections, the length of each section determines its relative strength. The function $f(x) = x^3 - 14x^2 + 69x - 140$ describes the relative strength of a section of length x feet. After testing plastic, engineers discovered that 5-ft sections were extremely weak.

- a) Why is $x = 5$ a possible factor when $x = 5$ is the length of the pipe? Show that $x - 5$ is a factor of the polynomial function.
b) Are there other lengths of plastic that are extremely weak? Explain your reasoning.

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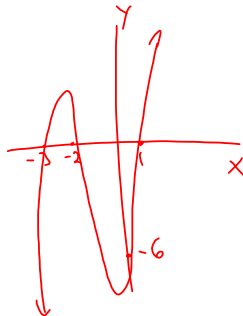
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ex1: Sketch and label all intercepts.

$$y = (x-1)(x+2)(x+3)$$

$$x\text{-int } x = 1, -2, -3$$

$$y\text{-int } (-1)(2)(3) = -6$$



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ex2: Sketch and label all intercepts.

$$y = -2x^3 + 6x - 4$$

$$f(1) = -2 + 6 - 4 = 0$$

$$(x-1)$$

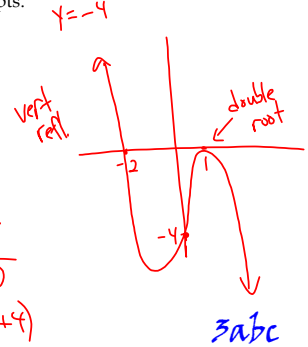
$$\begin{array}{r|rrrrr} -1 & -2 & 0 & 6 & -4 \\ & & 2 & 2 & -4 \\ \hline & -2 & -2 & 4 & 0 \end{array}$$

$$\therefore y = (x-1)(-2x^2 - 2x + 4)$$

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

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

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



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

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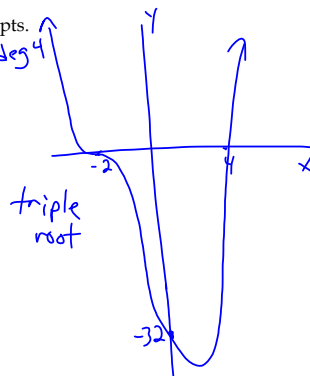
ex3: Sketch and label all intercepts.

$$y = (x+2)^3(x-4)$$

$$x\text{-int } -2, 4$$

triple

$$y\text{-int } (2)^3(-4) = -32$$

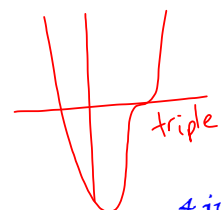
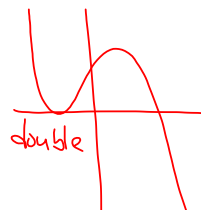


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What do double and triple roots look like?



4 just ()

5

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HW: p148#1abd
p73#5de