

Bellwork Alg 2A Monday, May 1, 2017

1. Use this equation: $x^4 + 3x^3 + x^2 + 15x - 20 = 0$

Find all four Complex Solutions (real and imaginary) by doing the following:

- Find all real solutions by graphing then,
- Use the real zeros to find the remaining imaginary solutions using polynomial division.

2. Are -3 and 2 zeros of the following function?

$$y = x^3 + 8x^2 + x - 42$$

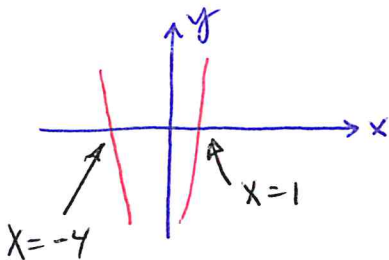
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Answers

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Real zeros are -4 & 1

factors are

$$x+4 \text{ \& } x-1$$

$$(x+4)(x-1)(x^2+5) = 0$$

$$x = -4, 1, \pm i\sqrt{5}$$

$$\begin{array}{r} x+4 \overline{) \begin{array}{r} x^3 - x^2 + 5x - 5 \\ x^4 + 3x^3 + x^2 + 15x - 20 \\ -x^4 + 4x^3 \\ -x^3 + x^2 \\ -x^3 - 4x^2 \\ 5x^2 + 15x \\ -5x^2 + 20x \\ -5x - 20 \\ -5x - 20 \\ 0 \end{array}} \end{array}$$

TRY FACTORING $x^3 - x^2 + 5x - 5$

	x	-1
x^2	x^3	$-x^2$
$+5$	$5x$	-5

2. Are -3 and 2 zeros of the following function?

$$y = x^3 + 8x^2 + x - 42 = f(x)$$

$$f(-3) = 0 \quad \text{Yes, } -3 \text{ is a zero}$$

$$f(2) = 0 \quad \text{Yes, } 2 \text{ is a zero}$$