Bellwork Alg 2 Monday, December 2, 2019

For these two problems graph or solve to find all real zeros. Then, use polynomial division to help find the remaining zeros. Round real solutions to the nearest hundredth where necessary. Simplify imaginary solutions.

1. $x^3 - 8 = 0$

2. $2x^4 + 7x^3 - 7x^2 + 28x - 60 = 0$

3. Find this quotient. $x^2 + 3x + 7 \overline{)\, 4x^4 + 11x^3 + 33x^2 + 17x + 56}$

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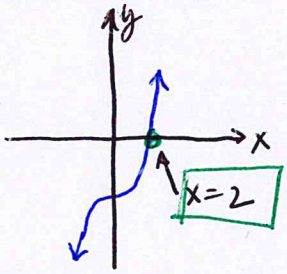
ANSWERS

For these two problems graph or solve to find all real zeros. Then, use polynomial division to help find the remaining zeros. Round real solutions to the nearest hundredth where necessary. Simplify imaginary solutions.

1. $x^3 - 8 = 0$



	x^3	x^2	x	
2	1	0	0	−8
		2	4	8
	1	2	4	0

$x^2 + 2x + 4$

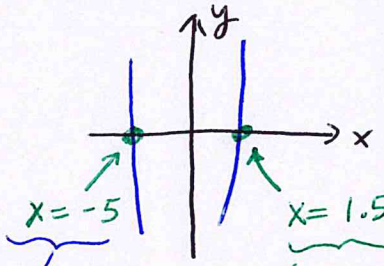
$b^2 - 4ac = -12$

$x = \frac{-2 \pm \sqrt{-12}}{2}$ ← −4.3

$= \frac{-2 \pm 2i\sqrt{3}}{2}$

Remaining Zeros: $x = -1 \pm i\sqrt{3}$

2. $2x^4 + 7x^3 - 7x^2 + 28x - 60 = 0$



−5	2	7	−7	28	−60
		−10	15	−40	60
	2	−3	8	−12	0

$2x^3 - 3x^2 + 8x - 12$

$x^2 + 4$

$2x - 3 \overline{)\ 2x^3 - 3x^2 + 8x - 12}$

$-\ 2x^3 - 3x^2$

$0 \quad 8x - 12$

$-\ 8x - 12$

0

$x^2 + 4 = 0$

$x^2 = -4$

$x = \pm 2i$

3. Find this quotient.

$x^2 + 3x + 7 \overline{)\ 4x^4 + 11x^3 + 33x^2 + 17x + 56}$

$4x^2 - x + 8$

$-\ 4x^4 + 12x^3 + 28x^2$

$-x^3 + 5x^2 + 17x$

$-\ -x^3 - 3x^2 - 7x$

$+8x^2 + 24x + 56$

$-\ +8x^2 + 24x + 56$

0

$4x^2 - x + 8$