

# Bellwork Alg 2A Monday, April 24, 2017

You may need these formulas at some point:

$$a^3 - b^3 = (a - b)(a^2 + ab + b^2)$$

$$a^3 + b^3 = (a + b)(a^2 - ab + b^2)$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

1. State if each is a polynomial or not. If not, circle the reason why not, or explain why it isn't.

a)  $y = 4x^3 - 9x^{-2} + \frac{3}{x} - 1$

b).  $y = -9.23x^3 + \frac{7}{8}x^4 - 1000$

c)  $f(x) = 12x^6 + 5\sqrt{2x} - x^{\frac{2}{3}}$

d)  $y = 8x^2 - 5ix + 2^x$

2. Sketch the graph of this polynomial. Include the correct end-behavior and shape at each zero. Label the x-axis with each zero.

$$y = -5x^2(2 - x)(x + 2)^3(x - 6)$$

3. State the Leading Coefficient (actual #) and Degree (actual #) of this polynomial.

$$f(x) = 4x(2x - 7)^2(5 - 3x)^3(6x + 1)$$

Deg =

LC =

4. Find all EXACT Complex solutions by factoring:  $432x^4 + 250x = 0$

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Answers

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1. State if each is a polynomial or not. If not, circle the reason why not, or explain why it isn't.

a)  $y = 4x^3 - 9x^{-2} + \frac{3}{x} - 1$  **NO**

b).  $y = -9.23x^3 + \frac{7}{8}x^4 - 1000$  **YES**

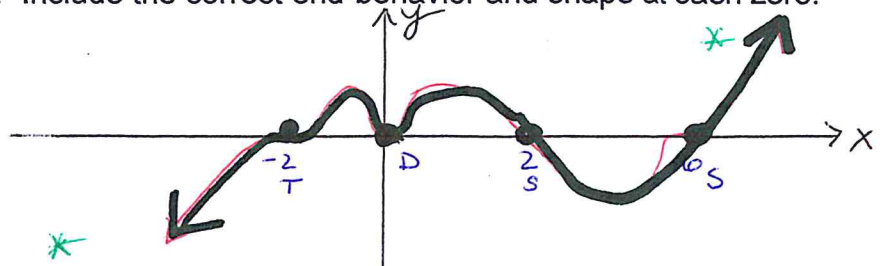
c)  $f(x) = 12x^6 + 5\sqrt{2x} - x^{\frac{2}{3}}$  **NO**

d)  $y = 8x^2 - 5ix + 2^x$  **NO**

2. Sketch the graph of this polynomial. Include the correct end-behavior and shape at each zero. Label the x-axis with each zero.

$$y = -5x^2(2 - x)(x + 2)^3(x - 6)$$

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3. State the Leading Coefficient (actual #) and Degree (actual #) of this polynomial.

$$f(x) = 4x(2x - 7)^2(5 - 3x)^3(6x + 1)$$

Deg = 7

LC = -2592

$$(4)(2^2)(-3^3)(6) =$$

4. Find all EXACT Complex solutions by factoring:  $432x^4 + 250x = 0$

$$2x(6x+5)(36x^2 - 30x + 25)$$

$$\downarrow \quad \downarrow$$

$$x=0 \quad x=-5/6$$

$$\Rightarrow \frac{30 \pm \sqrt{-2700}}{72}$$

$$-900 \cdot 3$$

$$2x(216x^3 + 125) = 0$$

$$2x((6x)^3 + (5)^3) = 0$$

$$a=6x \quad b=5$$

$$x = 0, -\frac{5}{6}, \frac{5 \pm 5i\sqrt{3}}{12}$$