

Alg2 Polynomials Practice Quiz

Do the required work to decide if the following are polynomials in one variable. If they are polynomials, fill in the information provided. If it is not a polynomial, explain why.

1. $4.5 - 7x^3 + 2x^5 + 9.4x$

Circle one: Monomial/Binomial/Trinomial/Polynomial/Not One(explain below)

Descending order: $2x^5 - 7x^3 + 9.4x + 4.5$

Degree: 5

Leading Coefficient: positive

Circle one: Even Odd

2. $-8x^3(5x^4 - 4x^5) - 40x^7 + 32x^8$

Circle one: Monomial/Binomial/Trinomial/Polynomial/Not One(explain below)

Descending order: $32x^8 - 40x^7$

Degree: 8

Leading Coefficient: positive

Circle one: Even Odd

3. $(4x - 1 + x^3 - 2x^2) - (-2x^2 + 5x + 7x^3 - 2)$

Circle one: Monomial/Binomial/Trinomial/Polynomial/Not One(explain below)

Descending order: $-6x^3 - x + 1$

Degree: 3

Leading Coefficient: negative

Circle one: Even Odd

4. $5x + \frac{4}{x^3} - 9x^2$

Circle one: Monomial/Binomial/Trinomial/Polynomial/Not One(explain below)

Descending order:

Degree:

Leading Coefficient:

Circle one: Even Odd

$\frac{4}{x^3}$ creates a negative power

5. $(1 + 6x)^2$ $1 + 12x + 36x^2$

Circle one: Monomial/Binomial/Trinomial/Polynomial/Not One(explain below)

Descending order: $36x^2 + 12x + 1$

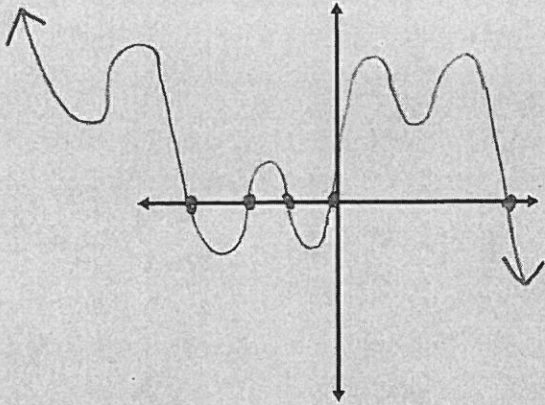
Degree: 2

Leading Coefficient: positive

Circle one: Even Odd

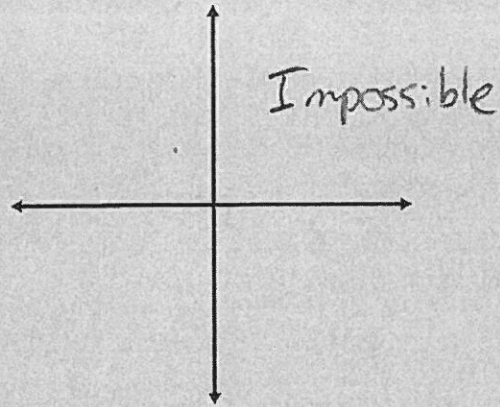
Sketch the following, if possible.

6. Degree of 9, 5 real zeroes, LC -



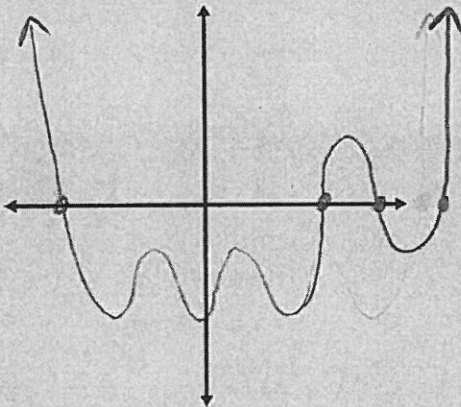
End Behaviors: L: $+\infty$ R: $-\infty$

7. Degree of 9, 4 real zeroes, LC +



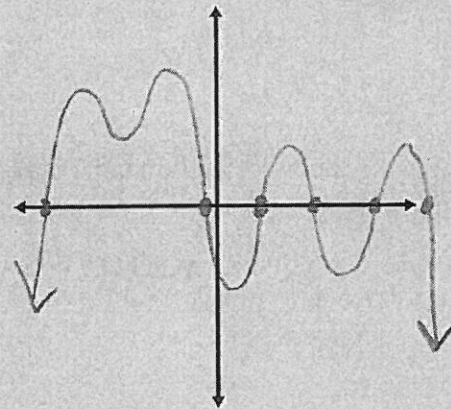
End Behaviors: L: _____ R: _____

8. Degree of 8, 4 real zeroes, LC +



End Behaviors: L: $+\infty$ R: $+\infty$

9. Degree of 8, 6 real zeroes, LC -



End Behaviors: L: $-\infty$ R: $-\infty$

10. What 2 key things do you know about imaginary roots?

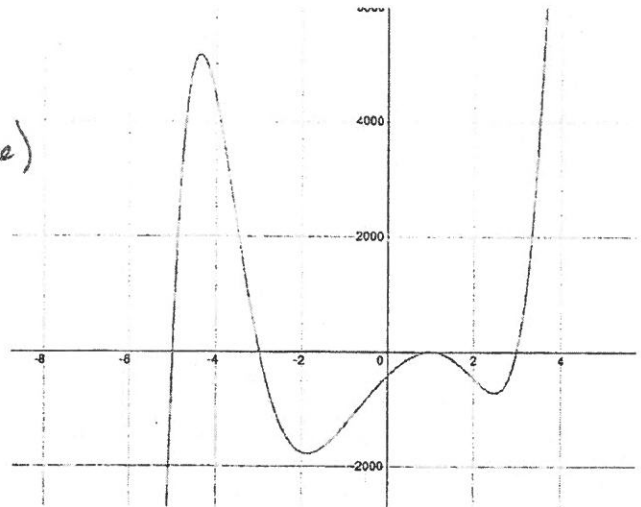
*they come in pairs
turning points that don't cross the x-axis are the giveaway*

11. Without using a calculator and just looking at the equation $y = 14x^{18} - 7x^{15} + 2x^5 - 93$, answer the following:

- What are the total number of solutions? 18
- This is also known as the degree
- What is the leading coefficient? positive
- What are the end behaviors? L: $+\infty$ R: $+\infty$
- If I told you that this graph crossed the x-axis 10 times, how many imaginary zeroes will you have?
8

12. Given the sketch to the right, answer the following:

- a. # of Total Roots 5
- b. # Real Roots 5 (including a double)
- c. # Imaginary Roots 0



13. Given the table, answer the following:

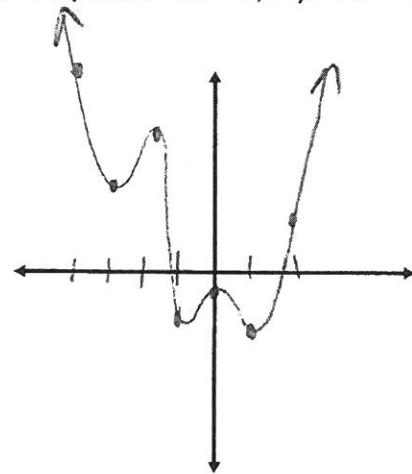
X	Y
-4	50
-3	23
-2	41
-1	-15
0	-3
1	-16
2	12

real root

real root

- # Real Roots (and where): 2
- # Imaginary Roots: 4
- Degree: 6
- # of Turning Points: 5
- # of Relative Max: 2
- # of Relative Min: 3

Here's a place to sketch, if you'd like to



14. Given the equation $y = 0.02x^5 + 0.004x^4 - 1.3x^3 - 0.3x^2 + 10x + 25$, use your graphing calculator to find the following:

- a. Name the Real roots: $x = -7.67, x = 3.95, x = 7.27$
- b. Name the Relative Maximum(s): $(-6.02, 84.67), (1.58, 35.15)$
- c. Name the Relative Minimum(s): $(-1.75, 13.26), (6.02, -45.91)$

25
3

3

3