Algebra 2 PLEASE DO NOT WRITE ON THIS PAPER! 7.1 An Introduction to Polynomials

**Vocabulary ~ Use the PAS strategy to preview, access prior knowledge, and set the purpose.**

1st – Read definitions and look at graphs/examples for the following words.

2nd – List in your INB three words you have heard before (title these ACCESS).

3rd – List in your INB three words that you have not heard before (title these SET).

**\*\*\*polynomial, non-polynomial, degree of polynomial, constant, monomial, binomial, trinomial, coefficient, linear, quadratic, cubic, quartic, quintic.\*\*\***

**The following problems and NOTES should be in your INB.**

**Include sentence stems and fill in answers, as well as examples and problems:**

1. Label the following table according to the degree and the number of terms.

|  |  |  |
| --- | --- | --- |
|  | Degree | # Terms |
| 7 |  |  |
| 7x |  |  |
| 7x + 2 |  |  |
| 7x2 + 2x + 1 |  |  |
| 7x3+ 2x2 + 1x + 3 |  |  |
| 7x4+ 2x3 + x2 + 3x - 1 |  |  |
| 7x5+ 2x4 + 2x3 + x2 + 3x - 1 |  |  |
|  |  |  |

(Create your own in the last empty row.)

2. A constant is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, but a coefficient is \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

3. The standard form of a polynomial is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

4. Write the polynomial in standard form: 3x3 - 9x4 + 7x5 + 3x – 15 - 4x2 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. What is the coefficient on the first term to your answer in #4?\_\_\_\_\_\_\_\_\_\_\_What is the constant?\_\_\_\_\_\_\_\_

6. Subtract the two polynomials , write answer in standard form, then classify your answer

(classify both degree and number of terms).

3x3 - 9x4 + 7x5 + 3x – 15 - 4x2

– ( 2x3 + 9x4 + 3x5 - x + 4 + 7x2)

Answer:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Classification:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. A polynomial function is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

8. A non-polynomial function is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**EXPLORING GRAPHS OF POLYNOMIAL FUNCTIONS: Using your calculator, graph each function, ZOOM IN!!.**

**Then copy and complete the tables. Look for a pattern and make a conjecture for the tables.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Function | Degree | Number of  U-turns |  | Function | Degree | Number of  U-turns |
| y = 3x – 2 |  |  |  | y = x4 / x3 = \_\_\_\_\_\_\_\_ |  |  |
| y = x2 - 16 |  |  |  | y = (x)(x) = \_\_\_\_\_\_\_\_ |  |  |
| y = x3 + 2x2 + x |  |  |  | y = x4 x = \_\_\_\_\_\_\_\_ |  |  |
| y = x4 |  |  |  |  |  |  |
| y = x5 |  |  |  |  |  |  |

9. Conjecture: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

10. Sketch (with some detail) the parent functions for each type of general function.

Linear Quadratic Cubic Quartic Quintic