

Name: Key Hour: _____ Date: _____

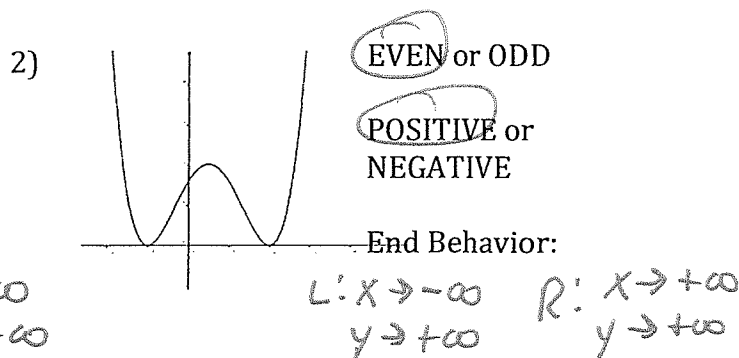
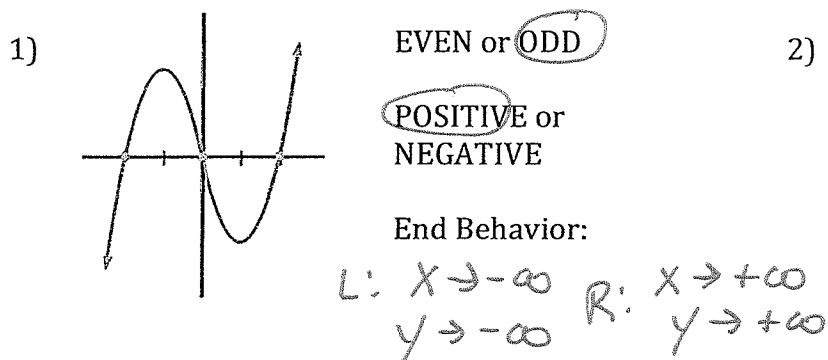
Polynomials Quiz Review (Friday, February 16)

Complete the following tables. Remember, you need to have this information memorized for Friday!

Classifying by Degree (the "first name" of the polynomial)		
Degree	Name	Example
0	constant	1
1	linear	x
2	quadratic	x^2
3	cubic	x^3
4	quartic	x^4
5	quintic	x^5

Classifying by Number of Terms (the "last name" of the polynomial)		
# of Terms	Name	Example
1	monomial	x
2	binomial	$x^2 + 1$
3	trinomial	$x^2 + x + 1$
4 or more	polynomial	$x^3 + x^2 + x + 1$

For the given graphs, decide whether the degree is EVEN or ODD, whether the leading coefficient is POSITIVE or NEGATIVE and describe the END BEHAVIOR.



Write the following polynomials in standard form and then classify them by degree/number of terms and describe their end behavior.

3) $5x - 2x^2 + 7x^4 - 4 + 2$

Standard Form: $7x^4 - 2x^2 + 5x - 2$

Classification: Quartic Polynomial

End Behavior: $\uparrow \uparrow$

L: $x \rightarrow -\infty$ $y \rightarrow +\infty$ R: $x \rightarrow +\infty$ $y \rightarrow +\infty$

4) $x^2 + 3x - 4x^5 + 2x^5 + x$

Standard Form: $-2x^5 + x^2 + 4x$

Classification: Quintic Trinomial

End Behavior: $\uparrow \downarrow$

L: $x \rightarrow -\infty$ $y \rightarrow +\infty$ R: $x \rightarrow +\infty$ $y \rightarrow -\infty$

5) $2 - 3x^3 - 2$

Standard Form: $-3x^3$

Classification: *cubic monomial*

End Behavior: $\uparrow \downarrow$

L: $x \rightarrow -\infty$
 $y \rightarrow +\infty$ R: $x \rightarrow +\infty$
 $y \rightarrow -\infty$

Find the product of the following polynomials (in standard form) and classify the polynomial by degree/number of terms and describe the end behavior.

7) $y^3(y^2 + 2y + 1)$

$y^5 + 2y^4 + y^3$

Quintic Trinomial

L: $x \rightarrow -\infty$
 $y \rightarrow -\infty$ R: $x \rightarrow +\infty$
 $y \rightarrow +\infty$

9) $(c + 3)(c - 1)(3c + 6)$

$3c^3 + 12c^2 + 3c - 18$

Cubic Polynomial

L: $x \rightarrow -\infty$
 $y \rightarrow -\infty$ R: $x \rightarrow +\infty$
 $y \rightarrow +\infty$

6) $(-a^2 - 3) - (3a - a^2 - 5)$

Standard Form: $-3a + 2$

Classification: *linear binomial*

End Behavior: $\uparrow \downarrow$

L: $x \rightarrow -\infty$
 $y \rightarrow +\infty$ R: $x \rightarrow +\infty$
 $y \rightarrow -\infty$

8) $-x(x + 4)(x + 8)$

$-x^3 - 12x^2 - 32x$

Cubic Trinomial

L: $x \rightarrow -\infty$
 $y \rightarrow +\infty$ R: $x \rightarrow +\infty$
 $y \rightarrow -\infty$

10) $(-2x + 3)(x - 4)^2$

$-2x^3 + 19x^2 - 56x + 48$

Cubic Polynomial

L: $x \rightarrow -\infty$
 $y \rightarrow +\infty$ R: $x \rightarrow +\infty$
 $y \rightarrow -\infty$

Give an example of a polynomial that satisfies the given constraints and describe its end behavior.

11) Positive (+) Quintic Binomial

Example: $x^5 + 2x$

End Behavior:

L: $x \rightarrow -\infty$
 $y \rightarrow -\infty$ R: $x \rightarrow +\infty$
 $y \rightarrow +\infty$

12) Negative (-) Quadratic Trinomial

Example: $-x^2 + 2x - 1$

End Behavior:

L: $x \rightarrow -\infty$
 $y \rightarrow -\infty$ R: $x \rightarrow +\infty$
 $y \rightarrow -\infty$

13) Positive (+) Quartic Polynomial

Example: $x^4 + 3x^3 + 2x^2 - x + 10$

End Behavior:

L: $x \rightarrow -\infty$
 $y \rightarrow +\infty$ R: $x \rightarrow +\infty$
 $y \rightarrow +\infty$

14) Negative (-) Linear Monomial

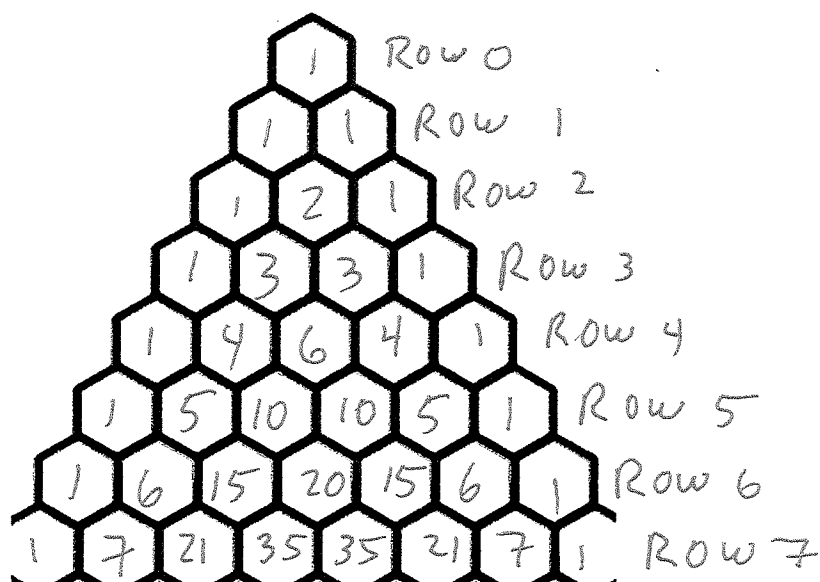
Example: $-2x$

End Behavior:

L: $x \rightarrow -\infty$
 $y \rightarrow +\infty$ R: $x \rightarrow +\infty$
 $y \rightarrow -\infty$

Calculator Portion:

Fill in the first 7 rows of Pascal's Triangle.



Use the binomial theorem to expand the following polynomials.

1) $(x + 3)^6$ $x^6 + 18x^5 + 135x^4 + 540x^3 + 1215x^2 + 1458x + 729$

2) $(y - 2)^5$ $y^5 - 10y^4 + 40y^3 - 80y^2 + 80y - 32$

3) $(a + b)^7$ $a^7 + 7a^6b + 21a^5b^2 + 35a^4b^3 + 35a^3b^4 + 21a^2b^5 + 7ab^6 + b^7$

4) $(2x - 3)^4$ $16x^4 - 96x^3 + 216x^2 - 216x + 81$

