

Name: _____ Hour: _____ Date: _____

Polynomials Unit Test Review Guide

Test Date: Wednesday, March 6, 2018

DO ALL WORK ON A SEPARATE SHEET OF PAPER

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

Classifying by Degree (the "first name" of the polynomial)		
Degree	Name	Example
0		
1		
2		
3		
4		
5		

Classifying by Number of Terms (the "last name" of the polynomial)		
# of Terms	Name	Example
1		
2		
3		
4 or more		

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

1) $(x - 3)^2(x - 1)$

2) $-x^2(x + 2)^2$

3) $(-2x^3 + 3x - 1)(x^2 + 5)$

4) $x^2(x^4 - 16)$

Factor the following polynomials. *HINT – Sometimes you only need to factor out a GCF and sometimes you need to factor completely.*

5) $18a^2b^2 - 36a^4b^3 + 27a^7b^4$

6) $3x^2y - 9xy^4$

7) $-2x^2y + 4x^4y + 6x^6y$

8) $3x^4 - 18x^3 + 24x^2$

9) $x^3 - 9x$

10) $-4w^5 + 20w^4 - 24w^3$

11) $12x^6 - 8x^5 - 40x^4$

12) $-6x^3 - 9x^2 + 27$

13) $10x^4 + 38x^3 + 24x^2$

Determine the zeros of each polynomial. If there are any multiples list them with their multiplicity. Sketch a graph of the function.

14) $y = -(2x + 6)(x - 2)(x + 6)(x - 4)$

15) $y = -x(x - 2)(x + 5)$

16) $y = (x - 3)^2(x + 1)^3$

17) $y = x^2(x + 1)(x - 2)^3$

18) $y = x^4 - 8x^3 + 16x^2$

19) $y = x^3 - 6x^2 - 16x$

20) $y = -2x^6 - 20x^5 - 48x^4$

21) $y = -2x^7 - 4x^6 + 70x^5$

Write the equation of the polynomial in factored form that satisfies the given constraints. Then sketch a graph of the polynomial.

22) Positive Odd

$x = 0$ with multiplicity 2

$x = 1$ with multiplicity 4

$x = -2$

23) Negative Even

$x = 0$ with multiplicity 3

$x = -4$ with multiplicity 2

$x = 2$

24) Negative Odd

$x = 3$ with multiplicity 3

$x = -5$ with multiplicity 2

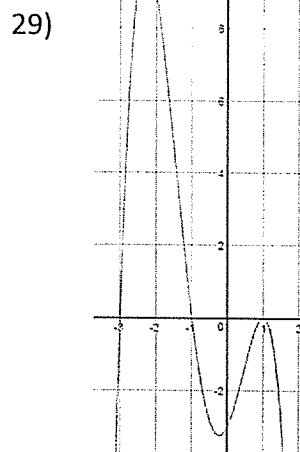
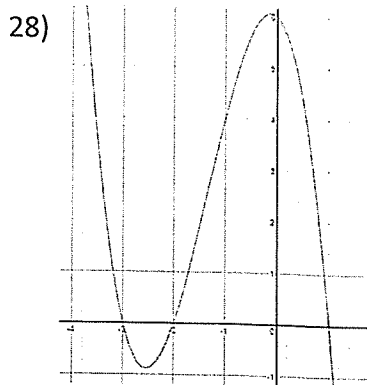
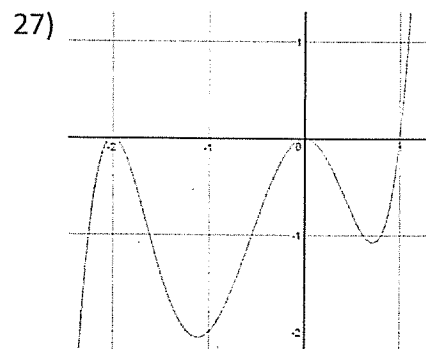
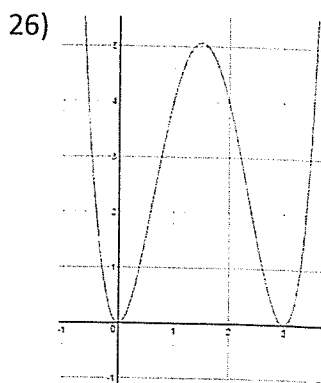
25) Positive Even

$x = 5$ with multiplicity 2

$x = 0$ with multiplicity 4

$x = -5$ with multiplicity 2

Write the equation in factored form of the given graph. Pay attention to multiplicities.



30) Based on the end behavior, match each function with its graph. Be able to explain how you made each decision.

$$f(x) = x^3 - 4x + 2$$

$$g(x) = -x^4 + 2x^3 + 2x$$

$$h(x) = -x^3 + 2x - 1$$

$$j(x) = x^2 - x + 1$$

