REVIEW:Polynomial Operations
I will be able to add, subtract, multiply, and divide polynomials.

Name _____ Per _____

Part 1: Classify each as **M** (monomial), **B** (binomial), **T** (trinomial), **P** (polynomial), or **C** (constant).

1). B $2x+1$ 2). B $17x^2+11$ 3). P $8x^3+2x^2+3x-7$

4). C -130 also monomial 5). T $4a^2+7a-10$ 6). T $10x^3-2x+1$

Part 2: Standard Form of Polynomials

7.) Circle the problems that are in **standard form**. If it is not in standard form, re-write in standard form.

a. x^3-11x^2 b. $2+3x+4x^2+3x^3$ c. $-3x+17x^4+2x^2$ d. $-1+3x+2x^2$

$3x^3+4x^2+3x+2$ $17x^4+2x^2-3x$ $2x^2+3x-1$

8. Given: $2x^3-5x^2-2x+12$

How many terms are there? 4 What is the coefficient of the 3rd term? -2 What is the constant? 12

Part 3: Add these polynomials. Only combine things that are alike (have the same exponent).

12.) $(19x^2+12x+12)+(7x^2+10x+13)$

$26x^2+22x+25$

13.) $(4x^2-6x+7)+(-19x^2-15x-18)$

$-15x^2+21x-11$

14.) $(20x^2+15x+13)+(-19x^2+17x+5)$

$x^2+32x+18$

15.) $(9x^6-4x^5)+(10x^5-15x^4+14)$

$9x^6+6x^5-15x^4+14$

16.) $(9x^2+12)+(7x^2+10x+13)$

$16x^2+10x+25$

17.) $(5x^6+9x^3-6x)+(-9x^6-20x^2-6x)$

$-4x^6-11x^3-12x$

Part 4: Subtract these polynomials.

18.) $(6x+14)$
$-(9x+5)$

$-3x+9$

19.) $(14x^2+13x+12)$
$-(7x^2+20x+4)$

$7x^2-7x+8$

20.) $(19x^2+9x+16)$
$-(5x^2+12x+7)$

$14x^2-3x+9$

21.) $(17x^2 + 7x - 14) - (-6x^2 - 5x - 18)$

$23x^2 + 12x + 4$

22.) $(-18x^2 + 4x - 16) - (15x^2 + 4x - 13)$

$-33x^2 - 3$

Part 5: Multiplying Monomials

23.) $2x(4x^2)$

$8x^3$

24.) $17x^2(2x^5)$

$34x^7$

25.) $-3x^3(4x^2)$

$-12x^5$

26.) $-12x^2(-2x)$

$24x^3$

Part 6: Use the distributive property to find the product (multiply).

27.) $4(x+2)$

$4x + 8$

28.) $-3(2x^2 + 1)$

$-6x^2 - 3$

29.) $6(x^2 + 2x + 7)$

$6x^2 + 12x + 42$

30.) $4x(1-x)$

$4x - 4x^2$

30.) $-x^2(x+5)$

$-x^3 - 5x^2$

31.) $3x^2(4x^3 - 5x + 10)$

$12x^5 - 15x^3 + 30x^2$

32.) $3x(-x^2 + 2x - 12)$

$-3x^3 + 6x - 36x$

Part 7: Use division and the distributive property to simplify. Divide EVERY term.

33.) $\frac{-15x+10}{5}$

$-3x + 2$

34.) $\frac{6x^2+10}{2x}$

$3x + \frac{5}{x}$

35.) $\frac{-18x^2+21x}{-3}$

$6x^2 - 7x$

36.) $\frac{14x^3+28x^2-70}{7}$

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

37.) $\frac{20x^4+15x^2}{5x^2}$

$4x^2 + 3$

38.) $\frac{x^4+3x^3+7x}{x}$

$x^3 + 3x^2 + 7$

Use the FOIL Method to simplify the following:

$(x-3)(x+4)$

$x^2 + x - 12$

$(2x+4)(2x+3)$

$4x^2 + 14x + 12$

$(x-7)(x-6)$

$x^2 - 13x + 42$

$(3x-1)(x+5)$ $(4x+3)(2x+4)$ $(x-4)(x-2)$

$3x^2+14x-5$ $8x^2+22x+12$ x^2-6x+8

$(x+3)^2$	$(3x+5)(3x-5)$	$(2x-1)(2x-1)(2x+1)$
x^2+6x+9	$9x^2-25$	$(2x-1)(4x^2-1)$ $8x^3-4x^2-2x+1$
$(x+1)^3$	$(3x-y)(2x^2+5xy+y^2)$	$(x^2-3x+5)(x^2+8x-1)$
x^3+3x^2+3x+1	$6x^3+15x^2y+3xy^2$ $-2x^2y-5xy^2-y^3$ $6x^3+13x^2y-2xy^2-y^3$	$x^4+8x^3-x^2$ $-3x^3-24x^2+3x$ $5x^2+40x-5$ $x^4+5x^3-20x^2+43x-5$

The following are Perfect Square Trinomials. Fill in the blanks to make each equation true.

$x^2 + 10x + 25 = (x+5)^2$

$16x^2 - 80x + 100 = (4x-10)^2$

Diff of Squares:

$(x+6)(x-6) = x^2-36$

Other Stuff to Know:

- Degree of Terms/Monomials

vs

- Degree of Polynomials
- Leading Coefficients
- Solving Polynomial Equations after Simplifying.