Chapter 5 Vocabulary:

Word	Meaning	Where to find more info
Base		
Binomial		
Coefficient		
Degree		
Exponent		
Monomial		
Polynomial		
Standard Form		
Trinomial		
Variable		

Operation	Rule	Where to find more info
Add		
Divide	_____ coefficients, _____ exponents	
Multiply	_____ coefficients, _____ exponents	
Negative Exponents		
Power to Power	_____ coefficients, _____ exponents	
Subtract		
Subtracted From		

Day 1

Adding and Subtracting Polynomials

# of terms	name	example
1 term	**mono**mial	$3x^2$
2 terms	**bi**nomial	$3x^2 + x$
3 terms	**tri**nomial	$3x^2 + x + 1$
many terms	**poly**nomial	$x^3 + 2x^2 - x + 5$

The degree of a polynomial is the_____.

1) $x^3 + 4x^2 + 1$ degree_____	2) $x^2 + x + 1$ degree_____
3) $x - 3$ degree_____	4) 6 degree_____

Standard Form

Arrangement of variables from _____ to _____,

From _____ to _____ degree of power.

5) $8 + 3p^2 + 4p$	6) $x - 4 + 11x^3 + 16x^4 - 2x^2$

Adding Polynomials:

Leave all **signs** the way they are and **combine LIKE TERMS**, don't touch exponents.
Remember: Like terms have the EXACT SAME variable, EXACT SAME exponent!

7) $(4x^2 - 3x + 2) + (-7x^2 + 5x - 1)$	8) $(3x^2 + 4y - 8) + (5x^2 - 7 + 9y)$

⌘ Subtracting Polynomials:

Distribute a **–1** through the second set of parentheses, then **combine like terms**.

9) $(9x^2 - 4x - 1) - (7x^2 - 3x + 10)$	10) $(7x^2y - 10xy^2 - 4xy) - (7xy^2 - 3xy + 3x^2y)$

⌘ Subtracted From:

When the problem says **SUBTRACTED FROM**, remember that what follows the **from** always goes **first**!

11) If $5x^2 - 8$ is subtracted from $12x^2 + 5$, find the result.	12) Subtract $x^2 + 2x$ from $-x^2 + x$.

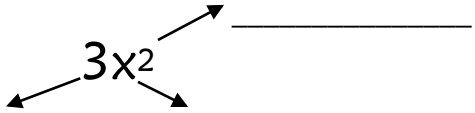
⌘ One step further:

13) $(3p + 1) + 6(p - 8) - (p + 2)$	14) $(3x^3 + 8x) - 2(x^3 + 12)$

Mulitplying & Dividing Monomials

Day 2

Parts of a Monomial:



Multiplying Monomials:

☆ **Rule:** When multiplying like bases, _____ coefficients, _____ exponents!

Examples:

1) $(-2x^2)(5x^4)$	2) $(pr^3)(p^2q^2r)$	3) $(2^3)(2^4)$
4) $5(2x^2+x+4)$	5) $2x^2y(3x-y)$	6) $4a(a^2b+2b^2)$

Dividing Monomials:

☆

☆

☆ **Rule:** When dividing like bases, _____ coefficients, _____ exponents!

Examples:

7) $x^9 \div x^5$	8) $2^5 \div 2^2$	9) $\frac{12z^8}{6z^2}$

10) $\frac{8a^2 - 12a}{4a}$	11) $\frac{16yz^2 - 8y^2z + 10yz}{-2yz}$

Day 2

Negative Exponents

$$\frac{x^3}{x^5} = x^{\square} = \_\_\_\_\_$$

$$\frac{x^3}{x^5} = \frac{x \cdot x \cdot x}{x \cdot x \cdot x \cdot x \cdot x} = \_\_\_\_\_$$

So: $x^{-2} = \frac{1}{x^2}$

☆

Examples:

12) 2^{-4}	13) r^{-3}	14) a^2b^{-5}

Raising a Power to a Power

$$(3n^3)^2 = (3n^3)(3n^3) = \_\_\_\_\_$$

$$(yz^4)^3 = (yz^4)(yz^4)(yz^4) = \_\_\_\_\_$$

☆ **RULE:** $(a^m)^n = a^{m \gamma n}$

☆ _____ coefficient to _____, _____ exponents

Examples:

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

Multiplying Polynomials

Day 4

In order to multiply 2 binomials, we have to **double distribute**.

You distribute the first term, then you distribute the second term.

Multiply: $(x+3)(x+2)$ = _____ + _____

Then make sure to **combine** any ***like terms***. Final answer: _____

Another method you could use is the **box method**:

	x	**+3**
x		
+2		

Again, make sure to **combine** any ***like terms***.

Final answer: _____

(It should be the same answer as above!)

Let's Try It:

4) $(x+2)(x-5)$	5) $(5x+2)(2x-1)$	6) $(x+5)^2$

7) $(x+4)(x^2+3x+6)$	8) $(2x+3)(x^2-6x+5)$

Classwork

Multiply the polynomials below, you may use whichever method you find easier.

9) $(x+2)(x+10)$	10) $(2x+4)(3x-3)$
11) $(x-2)(x^2-4x+5)$	12) $(2x-3)(x^2+7x-6)$

Multiplying Polynomials - Part II

Day 5

Cubing a binomial:

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

Remember that **multiplying polynomials** is just doing the **Distributive Property** multiple times!

5) Use the distribution method to solve this problem: $(2x^2-x-3)(x^2-3x-4)$

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

6) Multiply using the Grid Method: $(3x^2-7x+4)(x^2-3x+2)$

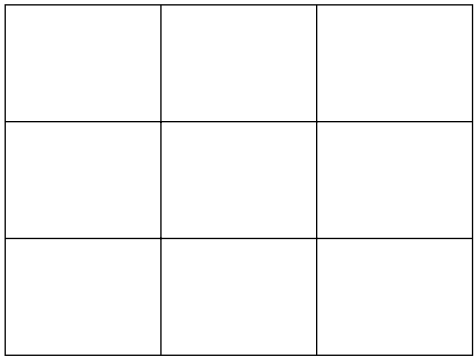
$(3x^2-7x+4)(x^2-3x+2)$

Steps:

1. Put polynomials on outside of box
2. Multiply corresponding parts
3. Pull out all pieces from the box
4. Combine like terms

Practice:

Multiply the following polynomials using either the Distribution Method or the Grid Method.



7) $(-2f^3-2f+1)(f^2-f+2)(-2f^3-2f+1)(f^2-f+2)$

8) $(w+1)(w^4-w^3+w^2-w+1)(w+1)(w^4-w^3+w^2-w+1)$
