Name: ______________________________

Hour: ______

CHAPTER 11:

POLYNOMIALS

It is nice to be important. But, it is more important to be nice.

Lesson 11-1: Introduction to Polynomials

Vocabulary

Polynomial: ____

____

____

Example: $$2x^4 - 3x^3 + x^2 + 5x - 6$$

Degree: ____

Standard Form: ____

____

Leading Coefficient: ____

____

Term: ____

____

Special Polynomials		
Linear		
Quadratic		
Cubic		
Quartic		

Practice

1. Consider the following polynomial: $-2m^4 + 3m + 6m^5 - 5m^2 + 1$

   a) Write the polynomial in standard form.

   b) Identify the leading coefficient.

   c) Give the degree of the polynomial.

   d) State the number of terms.

2. Starting the summer after her senior year in high school, Mrs. Merritt worked to save money for a new car. At the end of each summer, she deposited her money into an account with an interest rate of *r* %. She planned to get a new car after her fourth year of college.

after senior year	\$1500
after 1st year college	\$2200
after 2nd year college	\$2100
after 3rd year college	\$3000
after 4th year college	\$3300

   a) Write a polynomial expression representing the amount she will have saved by the end of her fourth year of college.

   b) If she earns 6% interest each year, calculate how much she will have saved.

Lesson: Multiplying Polynomials

Remember…

When multiplying powers, ________________________ the coefficients, but

__________________ the exponents!

Example: $(3x^2)(4x^5) =$ __________________

The key to multiplying polynomials is…

Practice

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

2) $(4r^3 - 3p^2r^2)(8pr^5 + 6p^3r^2 - 5r)$

If you're confused, try using a box to keep terms straight.

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

Lesson 11-2: Applications & Problem Solving w/ Polynomials

Vocabulary

Monomial: ____

Binomial: ____

Trinomial: ____

**A quick note about the "degree" of a polynomial…*

If a term has more than one exponent, the total degree is the

____

The degree of a polynomial is the _______________________ of its terms!

Practice

Classify each polynomial, then give its degree.

1. $3m^7n^5 + 6m^4n^9 - m^3n^6$

2. $-2x^2y^2 + 6xy^5$

3. Give the dimensions of the rectangle and find the area.

	2k	6s	7r
3k			
12			

Dimensions:

Area:

4. An open box is folded from a sheet of cardboard so that it is 30cm by 45cm by removing squares of side length x from each corner.

Write an expression to represent the total volume of the box.

Lesson: Area & Perimeter Practice w/ Polynomials

Vocabulary

Perimeter: ____

Area: ____

Remember your Geometry area formulas…

Triangle:

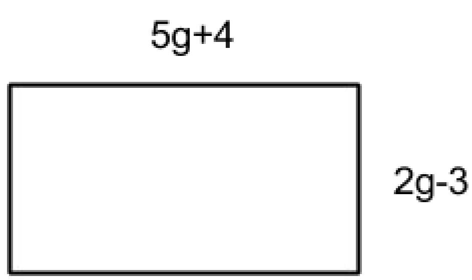
Square/Rectangle:

Circle:

Practice

Find the perimeter and area of each figure.

1.



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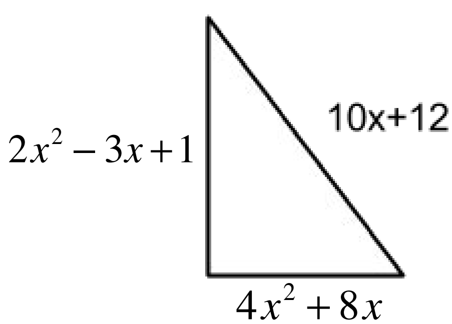

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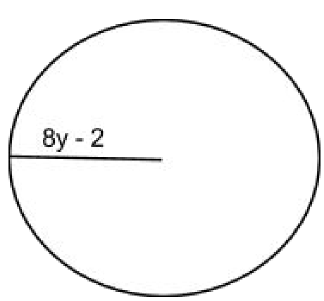


Lesson: Factoring with GCF

Vocabulary

GCF: ____

Examples:

4 & 18 | 12 & 40 | 27 & 63 | 30, 84, & 210

Factoring: ____

____

*polynomials that cannot be factored are called ______________________.

Remember we already know how to FOIL…

Examples:

$(x+2)(x+3) \qquad =$

So, to factor a trinomial you will be starting with something that looks like this: $x^2 + bx + c$ and ending with something that looks like this: (x +/- ____)(x +/- ____).

Using the above example, check this out:

$(x+2)(x+3) \qquad =$

Practice

1. $x^2 + 12x + 35$
2. $x^2 + 3x + 2$
3. $x^2 + 10x + 24$

That works out really well, but what if the middle “b” number happens to be **negative**??? That would like like this… $x^2 - bx + c$.

Example: $x^2 - 8x + 15$

Practice

4. $x^2 - 7x + 10$

5. $x^2 - 2x + 1$

That works out really well, but what if the last number “c” happens to be **negative**??? That would like like this… $x^2 + bx - c$.

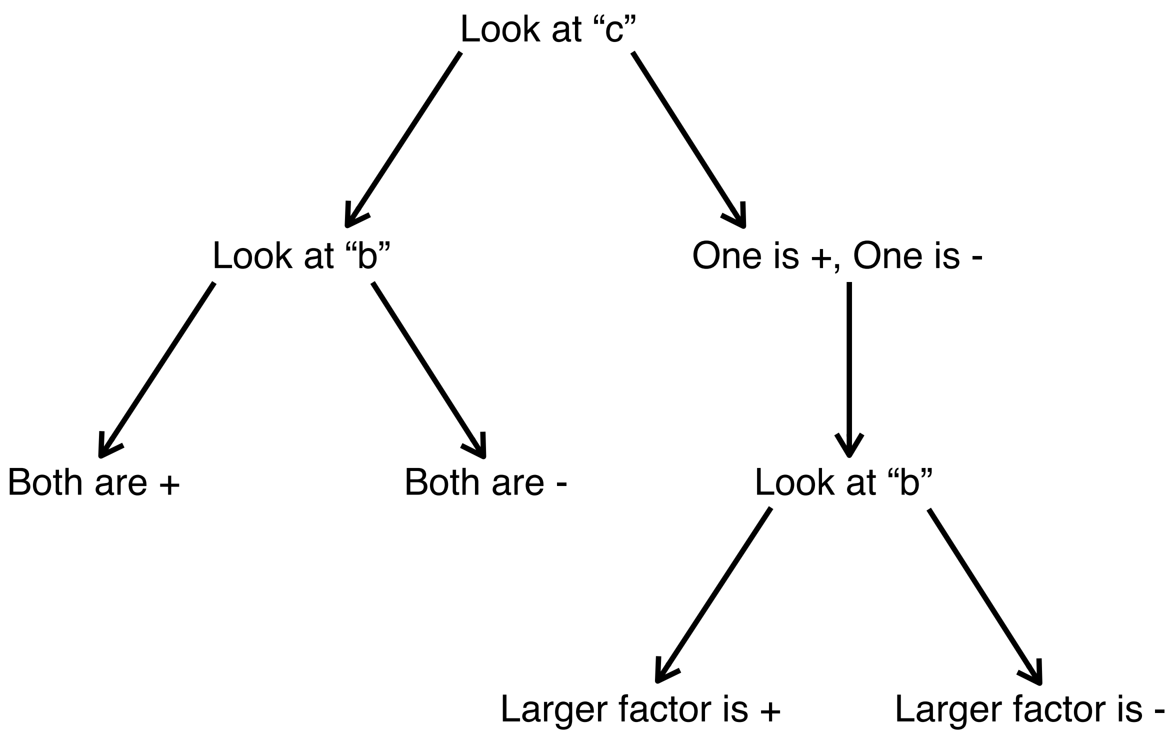
Example: $x^2 + 4x - 21$

Practice

6. $x^2 + x - 2$

7. $x^2 - 3x - 28$

How to Pick Your Signs:



Practice

1. $x^2 + 11x + 24$

2. $x^2 - 6x + 8$

3. $x^2 - 2x + -15$

Factor Practice ~ Mixed

Factor using GCF.

1. $36x^3 + 24x^2 - 48x - 12$

2. $21m^4n^2 - 14m^5n^4 + 56m^2n^2$

Factor each trinomial.

3. $x^2 - 3x + 2$

4. $x^2 - 8x - 48$

Factor using GCF, then factor the trinomial.

5. $3x^3 + 3x^2 - 36x$

Special Cases of Factoring

Factor $x^2 - 25$

Difference of Squares	
$a^2 - b^2$	

Practice

1. $x^2 - 36$

2. $x^2 - 16y^2$

3. $9x^2 - 49$

4. $16x^4 - 81$

Difference of Cubes	
$a^3 - b^3$	

5. $x^3 - 27$

6. $8x^3 - 64$

7. $125x^3 - 1$

Sum of Cubes	
$a^3 + b^3$	

8. $27x^3 + 1$

9. $8x^3 + 8y^3$