MBF 3C1 Name: _____

Common Factoring and Difference of Squares

The opposite of expanding is_____.

A _____ is an expression that can be divided into each term in a polynomial.

For example, $3x$ is a common factor for the polynomial $9x^3 - 15x^2 + 3x$, because $3x$ divides evenly into each of the three terms.

TO COMMON FACTOR:

1. Determine what the greatest common factor is for all the terms in the polynomial.	$9x^3 - 15x^2 + 3x$ *Choose the greatest number and the most variables that will divide evenly into each term:*
2. Divide each term in the polynomial by the common factor.	
3. Write the answer in proper form: GCF ("left overs").	

Example 1

a. $8x^4 - 4x^3 + 20x^2$ b. $25x^2 - 100$ c. $-54x^4 + 135x$

MBF 3C1 Name: _____

A number is a _____ if when square rooted the result is a whole number.

For example, 9, 16, 25, 81 and 100 are all perfect squares because when square rooted the answers are whole numbers $\rightarrow \sqrt{9}=3$, $\sqrt{16}=4$, $\sqrt{25}=5$, $\sqrt{81}=9$ and $\sqrt{100}=10$.

If a variable has an **even** exponent then it is considered a perfect square.

To determine the square root of a variable, keep the base and divide the exponent by 2.

For example, x^8 is a perfect square, its square root is x^4.

A **difference of squares** is a **binomial** with **two perfect square terms being subtracted.**

TO FACTOR USING DIFFERENCE OF SQUARES:

1. Check to ensure that difference of squares factoring is possible.	$9x^2-16$ Two terms both terms perfect squares, even powers subtraction
2. Create two sets of brackets. 3. Square root the first term of the polynomial and place one in each bracket in first position 4. Square root the second term of the polynomial and place one in each bracket in second position. 5. Separate the terms in one bracket with + and in the other with $-$.	

Example 2

a. x^2-25 b. $16x^2-1y^2$ c. $81x^2-4y^4$