Date: _____

# Lesson 8: Factor Difference of Squares

A special type of polynomial that has two squares joined by a subtraction sign also knows as a "difference of squares" can be factored with two conjugate binomials.

To find the factors take the square root of each of the terms. One binomial you ***add*** the roots, the other you ***subtract***.

$$m^2 - n^2 = (m+n)(m-n)$$

***Examples:*** *Factor.*

1) $x^2 - 9$ $= (x)^2 - (3)^2 = (x-3)(x+3)$

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

3) $64a^2 - 49$ $= (8a+7)(8a-7)$

4) $16x^2 - 25y^2$ $= (4x+5y)(4x-5y)$

5) $x^4 - 81$ $= (x^2+9)(x^2-9)$ ← factor further!

$= (x^2+9)(x+3)(x-3)$

*Always look for a GCF!*

6) $\frac{8x^2}{8} - \frac{32}{8}$ $= 8(x^2-4) = 8(x+2)(x-2)$

GCF = 8

7) $\frac{xy^2}{x} - \frac{x^3}{x}$ $= x(y^2-x^2) = x(y+x)(y-x)$

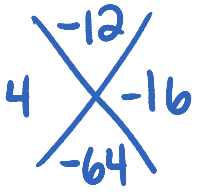
GCF = x

8) $\frac{3a^3}{3a} - \frac{12ab^2}{3a}$ $= 3a(a^2-4b^2) = 3a(a+2b)(a-2b)$

GCF = 3a

9) $x^4 - 12x^2 - 64$ $= (x^2+4)(x^2-16)$ ← factored further!

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




1 64

2 32

8 8

***Worksheet***