

**Factoring by GCF**

**Warm Up: Multiply.**

1.)  $3x(x-5)$

$3x^2 - 15x$

2.)  $4xy^2(5x-3y)$

$20x^2y^2 - 12xy^3$

3.)  $-3ab(6a^4b^2 - 4ab)$

$-18a^5b^3 + 12a^2b^2$

**Example 1:** Find the GCF of the following sets of monomials.

a. 6, 12, and 42

$6$

b.  $4xz$ ,  $64x^2yz^2$ , and  $68x^3y$

$4x$

c.  $2x$ ,  $4x^2$ , and  $8x^3$

$2x$

d.  $3xy^3$ ,  $6x^2y$ , and  $12x^3y^2$

$3xy$

**Factoring is like undoing the distributive property. You will need to find the GCF and then divide it out from each monomial.**

**Example 2:** Factor by using the GCF.

a.)  $\frac{3x-15}{3 \quad 3}$

$3(x-5)$

b.)  $\frac{4x-16x^2}{4x \quad 4x}$

$4x(1-4x)$

c.)  $\frac{15a^2-25a^5}{5a^2 \quad 5a^2}$

$5a^2(3-5a^3)$

d.)  $\frac{4x^2-3x}{x \quad x}$

$x(4x-3)$

e.)  $\frac{-10y^3+20y^2-5y}{-5y \quad -5y \quad -5y}$

$-5y(2y^2-4y+1)$

f.)  $14n^3+7n+7n^2$

$\frac{14n^3+7n^2+7n}{7n \quad 7n \quad 7n}$   
 $7n(2n^2+n+1)$

g.)  $\frac{-4xy-8x}{-4x \quad -4x}$

$-4x(y+2)$

Take out negative w/ GCF when L.C. is negative

h.)  $\frac{-20x+30y}{-10 \quad -10}$

$-10(2x-3y)$

i.)  $\frac{12x^2y+24xy^2}{12xy \quad 12xy}$

$12xy(x+2y)$