

## Common Factoring

**Pre-Practice: Multiply/Divide the following monomials**

a)  $2x(4x)$

b)  $-5(2x^2)$

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

d)  $\frac{4x^2}{2x}$

e)  $\frac{15x^2}{3x^2}$

f)  $\frac{24x^2y}{-3xy}$

**Factoring is the mathematical technique of rewriting an expression as a product of multiple expressions. For example:  $3x + 6 = 3(x + 2)$**   
To ***common factor***, we extract the largest factor from all terms in a polynomial.

For example, consider the following expression

$$6x^2 - 4x$$

- What is the greatest common multiple in all coefficients? \_\_\_\_\_
- What is the smallest exponent on 'x'? \_\_\_\_\_

So we factor out \_\_\_\_\_ from the expression to get... \_\_\_\_\_

### Example

**Common factor the following expressions**

a)  $2x + 8$

b)  $-10x^3 + 5x$

c)  $24x + 8y - 12$

d)  $9x^2 - 6x + 17$

**Practice – Expanding Binomials and Common Factoring**

1. Expand the following.

a)  $(x - 3)(x + 10)$

b)  $(x + 6)(x - 8)$

c)  $(2x - 1)(3x + 9)$

d)  $-2(x - 5)(x + 6)$

e)  $(x - 8)^2$

f)  $-3(x - 5)^2$

2. Common factor the following.

a)  $5x + 10$

b)  $8x^2 - 24$

c)  $6x + 7x^2$

d)  $3x^2 - 6x$

e)  $-5x^2 + 30x$

f)  $12a - 18a^2$

g)  $36x^2 + 12x - 6$

h)  $9x^2 - 3x + 6$

i)  $x^3 - 10x^2 + 5x$

j)  $-12x^2 + 3x - 18$

k)  $8x^2 - 12$

l)  $24x^2 - 12x + 7$