Name: _____

Key

Factoring:

Factoring means to **"undo"** what has been **multiplied** and/or **distributed**!

Common Factors:
When two integers are multiplied together, the answer is called a **product**.

The **integers that were multiplied together** are called the **factors** of the product.

$2x \cdot 3x^2 = 6x^3$

factor · factor = product

GCF:
The **greatest common factor** of two (or more) integers is the **largest integer** that is a **factor of both (or all) numbers**.

Find the GCF for the following shown below:

Integers:	**Monomials:**
Find the GCF of 18, 24, & 36.	Find the GCF of $12x^3$, $30x^2$, and $42x$.
18: 1, 2, 3, (6), 9, 18 24: 1, 2, 3, 4, (6), 8, 12, 24 36: 1, 2, 3, 4, (6), 9, 12, 18, 36 GCF = 6	$12x^3$: 1, 2, 3, 4, (6), 12, (x · x · x) $30x^2$: 1, 2, 3, 5, (6), 10, 15, 30, (x · x) $42x$: 1, 2, 3, (6), 7, 14, 21, 42, (x) GCF = 6x

Factoring Expressions using the GCF:

Factor each expression using the GCF:

1] $3a + 6$

$3 \mid 3a \;\; 6$

$a + 2$

$3(a+2)$

2] $8x^2 - 12y + 20$

$4 \mid 8x^2 - 12y + 20$

$2x^2 - 3y + 5$

$4(2x^2 - 3y + 5)$

3] $4mn - 10m$

$2m \mid 4mn - 10m$

$2n - 5$

$2m(2n - 5)$

4] $8a^3b^2 + 16a^2b^2 - 4ab$

$4ab \mid 8a^3b^2 + 16a^2b^2 - 4ab$

$2a^2b + 4ab - 1$

$4ab(2a^2b + 4ab - 1)$

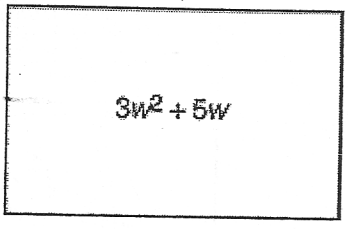
5) $5b^2c + 15bc + 25bc^2 - 15bc =$

$5b^2c + 15bc + 25bc^2 - 15bc$

$5bc(b + 3 + 5c - 3)$

$5bc(b + 5c)$

6) If the area of the rectangle is represented as $3w^2 + 5w$, where w is the width of the rectangle. What is the length of the rectangle in terms of w?



$w \mid 3w^2 + 5w$

$3w + 5$