**Factoring Expressions**

Vocabulary:

Factor – To write a number or an algebraic expression as a product

***(Factoring Out the GCF)***

Factor 24x – 18 using the GCF

**Step(1): Find the GCF of 24x and 18 by writing all of the factors of each number**

 **24x = 1, 2, 3, 4, 6, 8, 12, 24 18 = 1, 2, 3, 6, 9, 18**

**Step(2): Locate the GCF by looking at the largest common factor of two more numbers**

 **24x 🡪 6 and 18 🡪 6 The GCF of both numbers is 6 (This is the outside #).**

**Step(3): Divide the original values by the GCF to give you the values in the parentheses**

 **24x ÷ 6 = 4x and 18 ÷ 6 = 3 So, 24x – 18 = 6(4x – 3)**

***(Factoring Out a Faction)***

Factor $\frac{1}{2} out of\frac{1}{2}x + \frac{3}{2}$

**Step(1): Write each term as a product of**$ \frac{1}{2}$ **and another factor**

$\frac{1}{2}x =\left(\frac{1}{2}\right)\left(x\right) and \frac{3}{2} =\left(\frac{1}{2}\right)\left(3\right)$

**Step(2): Place** $\frac{1}{2}$ **on the outside and the remainder of (x + 3) on the inside of the parentheses.**

$\frac{1}{2}x + \frac{3}{2} = \frac{1}{2}(x + 3)$

***(Factoring Out a Negative Number)***

Factor -2 out of -4p + 10

**Step(1): Write each term as a product of -2 and another factor**

 **-4p = (-2) (2p) 10 = (-2) (-5)**

 **or or**

 **-4p / -2 = 2p 10 / -2 = -5**

**Step(2): Place -2 on the outside and the remainder of (2p – 5) on the inside of parentheses.**

 **-4p + 10 = -2(2p – 5)**