Lesson Plan

Grade 10 Academic Math **Lesson: 6**

- **Unit: Polynomials** **Topic: Factoring $Ax^2 + Bx + C$**

- ***homework check:*** **Principles of Mathematics 10 p. 211 # 3, 6 – 9, 12, 16, 19, 20**

- ***note:*** **Factoring $Ax^2 + Bx + C$**

When given a quadratic to factor, it is important to find if the value of A can be common factored. When A cannot be common factored, the process of factoring becomes more involved. There are two methods we can use to factor in this case. The first involves the use of grouping and common factoring while the second uses more abstract thinking.

Method 1: grouping and common factoring

a) $2x^2 + x - 1 =$

$AC = 2(-1) = -2$

$B = 1$

$= 2x^2 - x + 2x + 1$

$= x(2x-1) + 1(2x-1)$

$= (2x-1)(x+1)$

b) $2x^2 + 5x - 3 =$

$AC = 2(-3) = -6$

$B = 5$

$= 2x^2 + 6x - x - 3$

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

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

Method 2: abstract thinking

c) $3x^2 + 7x + 2 =$

$AC = 3(2) = 6$

$B = 7$

write in the numbers/variables needed to give you $3x^2$

$= (3x \quad)(x \quad)$

we know that the only way to get a product of 2 is 2X1

it is important to get each of these numbers in the correct position

we know that if we decomposed, we need to add 6+1

therefore, we need to place the 2 to give us a product of 6

$= (3x \quad)(x \quad +2)$

and 1 to give us a product of 1

$= (3x+1)(x+2)$

Notice that these products come from the **outer and inner positions of FOIL**. When the possibilities for the numbers causing each product increase, the process can become quite involved but **You Can Handle It**. For example,

d) $2x^2 - 5x - 12 =$

$AC = -24$

$B = -5$

we need numbers that yeild a product of 8 and -3

we can use 2X4 and 3X1

decide which number must carry the negative sign

we get:

$= (2x-3)(x+4)$

- ***homework assignment:*** **<u>Principles of Mathematics 10</u> p. 223 # 5 – 7, 9, 11, 12, 15, 17**