



## Notes - Factoring More Complex Quadratics ( $ax^2 + bx + c$ ) Using the "Swing" Method

Factoring Polynomials is the reverse of Multiplying polynomials. When you Factor you start with the answer and you are looking for the "original" problem.

Remember.....The first thing you always do is look for the...

**Greatest Common Factor - GCF.**

When factoring more complex quadratics, ( $ax^2 + bx + c$ ), consider what happens when you multiply two binomials.

What is the product of  $(2x + 3)$  and  $(x + 5)$ ? \_\_\_\_\_

Look at where the parts of the trinomial came from. We can factor trinomials by working backwards. Notice the middle term ( $13x$ ) came from combining the like terms ( $10x$ ) and ( $3x$ ).

There are different methods for factoring trinomials. We are going to teach you the "Swing" Method. Later you may use any method that you have learned in the past so long as you get the right answer.

Example A)  $2x^2 + 13x + 15$

"Swing" Method Steps



**\*\*It starts like easy trinomials...**

- 1) Multiply "a" & "c"
- 2) Find the factors of "ac" that add to "b".
- 3) Write these factors as binomials.

**\*\*You Are Not Done Yet!!!**

- 4) Divide the factors by "a" and reduce.
- 5) Now "SWING" the denominator to the front of each binomial.
- 6) Check your answer by FOILing.

Final Answer: (        )(        )



Examples:

B)  $3x^2 + 2x - 5$

C)  $4x^2 - 10x - 24$

Now try these using the "Swing Method". Show your work for full credit.  
Factor completely.

1.  $2m^2 - 24m + 40$

2.  $2x^2 - 3x - 14$

3.  $4y^2 - 18y + 14$

4.  $3x^2 - 13x + 12$

5.  $10r^2 - 11r - 6$

6.  $12x^2 + 13x - 4$

7.  $5a^2 - 14a - 3$

8.  $3y^2 - 27y + 24$

9.  $15x^2 - 10x - 5$