MFM2PI – *Unit 6: Quadratic Expressions – Lesson 3*  Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Factoring Simple Trinomials**

1. **Introducing the Quadratic Expression!**

Before we move on to factoring simple trinomials, we should meet the star of this unit: the quadratic expression!  
A **quadratic expression** gets its name from the Latin word “quadratum” which means “square”. As you might expect, a quadratic expression has a “squared” term in it (which is a variable raised to the *second degree*).

x2 + 2x + 1

1. **Finding the Patterns**

We will learn how to factor a simple quadratic trinomial, which takes the form \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Remember that “factoring” is the opposite of “expanding” and the result of factoring a simple quadratic trinomial will be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

In order to factor a simple quadratic trinomial, which is a trinomial in the form ***x2 + bx + c***, you must observe the patterns that occur when two binomials are expanded. If we can see the patterns that exist, we can use those patterns to work backwards from the simple quadratic trinomial to the original two binomials!

i) (x + 2)(x + 5) ii) (a – 3)(a – 1) iii) (y + 3)(y – 2)  
  
  
  
  
  
  
  
What pattern do we notice between the “c” value of the  
trinomial and the two constants from the original binomials? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What pattern do we notice between the “b” value of the  
trinomial and the two constants from the original binomials? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. **Factoring Simple Trinomials**

Armed with these patterns and our trusty factoring tables, we can start to factor simple quadratic trinomials!  
Let’s try some examples together!

x2 + 3x + 2 x2 – 5x + 6 x2 + 3x – 10

Here is a decision tree, which will help you move from step to step as you factor simple quadratic trinomials!

One great thing about factoring simple quadratic trinomials is that you can ***expand your answer*** (which will be two binomials) back out again to see if your answer is correct! This is a great habit for checking your answers!

Let’s try a few more examples, including “checks” of our answers:

a) z2 + 7z + 12 *Check:* b) a2 – 2a + 1 *Check:*

c) h2 + 6h + 9 *Check:* d) b2 – 4b – 12 *Check:*

e) g2 + 2g – 8 *Check:* f) m2 – m – 6 *Check:*

**HW: *Unit 6 Lesson 3 Worksheet A***