**#3 FACTORING QUADRATICS**

LAUNCH: Write down everything you know about these kinds of expressions.
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| Standard Form =  |

* A, B, and C are the coefficients
* A cannot be 0
* x is the variable

Steps for Factoring:

1. Identify \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_ of your trinomial.
2. Find all \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of “a**∙**c” (two numbers that multiply to give you “c”) and choose the pair that adds or subtracts to give you “b”.
3. Rewrite your trinomial, using the pair from Step #2 instead of “\_\_\_\_\_”. (Keep “a” and “c” the same!)
4. \_\_\_\_\_\_\_\_\_\_\_\_ the first two and the last two terms.
5. Pull out the \_\_\_\_\_\_\_\_ of each group. (\*You should end up with the same polynomials in both sets of parenthesis!)
6. Keep one set of binomials (inside the parenthesis) and put your GCFs (outside terms) together for the second set.
7. \_\_\_\_\_\_\_\_\_ your final answer!

**CATEGORY 1: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**When the \_\_\_\_\_\_\_\_\_\_\_\_ term is POSITIVE, both signs will be the \_\_\_\_\_\_\_\_\_! If “b” is also POSITIVE, both signs will be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_!

1.) Factor: x2 + 6x + 8 2.) m2 + 12m + 32 3.) 3x2 + 8x + 5

**CATEGORY 2: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
When the \_\_\_\_\_\_\_\_\_\_\_\_ term is POSITIVE, both signs will be the \_\_\_\_\_\_\_\_\_! If “b” is NEGATIVE, both signs will be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_!

1.) Factor: x2 – 6x + 8 2.) x2 – 3x + 2 3.) 2x2 – 13x + 15

**CATEGORY 3: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**When the \_\_\_\_\_\_\_\_\_\_\_\_ term is NEGATIVE, the signs will be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_! The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ factor always gets the \_\_\_\_\_\_\_\_\_\_\_\_\_ sign as “b”!
1.) Factor: x2 - 2x – 15 2.) 3x2 + x – 10 3.) 5x2 - 7x – 6

LET’S APPLY!

Mr. Leichner is building a crib for his new baby Jillian. The crib will have a surface area of 3x2 +20x – 7. *Congratulate Mr. Leichner! His baby was born at the beginning of summer!*

1. What are the length and width of the crib? 2. What would the area of the crib be if x = 3 in?

PARTNER PRACTICE

1. The area of a rectangle is x2 + 7x + 6. What are the length and the width?

2. The area of a triangle is ½(2x2+5x+3). What are the height and base of the triangle?

INDEPENDENT PRACTICE

1. c2 + 12c + 35 2. 5x2 – 13x + 6 3. 2x2 - x – 3 4. x2 + 12x + 20
2. 4x2 - 21x + 5 6. x2 + 2x – 15 7. x2 – 16x + 64 8. 5x2 + 8x + 3