Name: _____   Date: _____
UNIT 1   **LESSON 7**

AIM: HOW DO WE FACTOR TRINOMIALS WHERE 'A' IS GREATER THAN 1 ("HARD TRINOMIALS")?

Do Now: Multiply $(2x + 3)(x - 1)$

HARD TRINOMIALS – RAINBOW METHOD

How do we know when to use it?

STEPS:

1) Bring the 1st and last term down (pots of gold).

2) Multiply the first and last coefficients (rainbow).

3) Find factors that add or subtract to the middle term and multiply to the product of the first and last coefficients.

4) Rewrite the problem with 4 terms.

5) Factor by "Grouping"- Split problem down the middle.

6) Factor the 1st two terms (GCF).

7) Copy and paste the (   ) on the other side.

8) Put the GCF of last two terms in front.

9) Determine your factors.

10) To check, double distribute or use tabular method.

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

$$M = -6 \text{ and } S = +5$$

$$2x^2 + 6x - 1x - 3$$

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

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

PRACTICE:

1. $2x^2 + x - 3$ 2. $16x^2 + 8x + 1$

3. $4x^2 - 6x - 4$

4. $5x^2 - 17x - 12$

5. $3x^2 - 5x - 12$

6. $9x^2 - 6x + 1$

7. $10x^2 + 26x - 12$

8. $2x^3 + 3x^2 - 5x + 8x^2y + 12xy - 20y$