

## Today's Plan:

**Learning Target (standard):** I will factor trinomials by splitting the middle.

**Students will:** Complete practice problems over previous concepts at the boards, put up homework problems on the board and make necessary corrections to their own work, take notes over new material and complete practice problems over new concepts.

**Teacher will:** Provide practice problems over previous concepts, check homework problems for accuracy and provide students feedback, describe and provide examples of new concepts and assign students assessment problems over new concepts.

**Assessment:** Board work, homework check and homework assignment

**Differentiation:** Students will work at the board, go over and correct homework at their seats, actively engage in lecture over new concepts, practice new concepts with the aid of other students and the teacher and complete homework assignment.

## Coach & Player:



Choose who will be the first coach and who will be the first player. The first coach is tell the player exactly what to write and why the player is writing it. The player is to do exactly what the coach says to do. When the coach is finished, players have the opportunity to ask the coach questions or let the coach know if a mistake has been made. The team should have a conversation before the manager (myself and/or Ms. Marion) is involved. Each team will have a different set of problems that it will be working through together.

Your goal is to get at least 80% of them stamped for accuracy before the end of class.



NAME \_\_\_\_\_ #103

$(2 \cdot 3)^2 = 6^2$  **BELL RINGER** 0:00:00

1.) Evaluate  $(2x)^2$  for  $x = 3$ .  
 $36$

2.) Evaluate the expression  $16 \div 2 \cdot 1$ .  
 $16 \div 2 \cdot 1$   
 $8 \cdot 1$   
 $8$

3.) Solve  $|2x - 1| > 3$ .

$2x - 1 < -3$   
 $2x < -2$   
 $x < -1$

$2x - 1 > 3$   
 $2x > 4$   
 $x > 2$

$\{x \mid x < -1, x > 2\}$   
 $(-\infty, -1) \cup (2, \infty)$

Factor.

$$3) 5n^2 + 25n - 70$$

$$5(n^2 + 5n - 14)$$

$$\begin{array}{c} 14 \\ \wedge \\ 7 - 2 = 5 \end{array}$$

$$n^2 + 7n - 2n - 14$$

$$n(n+7) - 2(n+7)$$

$$5(n+7)(n-2)$$

Factor.

$$6) 75m^2 - 48$$

$$3(25m^2 - 16)$$

$$\downarrow$$

$$3(5m+4)(5m-4)$$

Factor.

$$h^2 - 5h + 6$$

$$6$$

$$\swarrow \searrow$$

$$-3 + -2 = -5$$

$$\underline{h^2 - 3h} - \underline{2h + 6}$$

$$\downarrow$$

$$\underline{h(h-3)} - \underline{2(h-3)}$$

$$(h-3)(h-2)$$

Factor.

$$h^2 - 7h - 18$$

$$\begin{array}{c} 18 \\ \swarrow \quad \searrow \\ 2 \quad -9 = -7 \end{array}$$

$$\frac{h^2 + 2h - 9h - 18}{h \quad \downarrow \quad -9}$$

$$\underline{h(h+2)} - 9 \underline{(h+2)}$$

$$(h+2)(h-9)$$

Factor.

$$b^2 + 11b + 30$$

$$\begin{array}{c} 30 \\ \swarrow \quad \searrow \\ 5 \quad +6 = 11 \end{array}$$

$$\frac{b^2 + 5b + 6b + 30}{b \quad \downarrow \quad 6}$$

$$\underline{b(b+5)} + 6 \underline{(b+5)}$$

$$(b+5)(b+6)$$

Factor.

$$b^2 + 7b - 30$$

$$\begin{array}{c} 30 \\ \wedge \\ 10 \quad -3 = 7 \end{array}$$

$$\frac{b^2 + 10b - 3b - 30}{b \quad \downarrow \quad -3}$$

$$b(b+10) - 3(b+10)$$

$$(b+10)(b-3)$$

Factor.

$$y^2 - 4y - 45$$

$$\begin{array}{c} 45 \\ \wedge \\ 5 \quad -9 = -4 \end{array}$$

$$\frac{y^2 + 5y - 9y - 45}{y \quad \downarrow \quad -9}$$

$$y(y+5) - 9(y+5)$$

$$(y+5)(y-9)$$

Factor.

$$a^2 - 2a - 3$$

$$\begin{array}{c} 3 \\ \swarrow \searrow \\ 1 \quad -3 = -2 \end{array}$$

$$\frac{a^2 + a - 3a - 3}{\begin{array}{cc} a & \downarrow \\ & -3 \end{array}}$$

$$a(a+1) - 3(a+1)$$

$$(a+1)(a-3)$$

Factor.

$$u^2 + 3u - 4$$

$$\begin{array}{c} 4 \\ \swarrow \searrow \\ 4 \quad -1 = 3 \end{array}$$

$$\frac{u^2 + 4u - u - 4}{\begin{array}{cc} u & \downarrow \\ & -1 \end{array}}$$

$$u(u+4) - 1(u+4)$$

$$(u+4)(u-1)$$

## Things to think about:

- Any time you are factoring, check
  - positive leading coefficient and descending order
  - common monomial (GCF)
  - number of terms
    - binomial - difference of two squares
    - trinomials - leading coefficient is 1 (split the middle)
    - trinomials - leading coefficient is not 1 (split the middle)
    - 4 terms - factor by grouping

## Factoring Trinomials: $ax^2 \pm bx + c$

- if the trinomial's lead coefficient is not 1, check for a GCF and then
  - multiply  $a$  and  $c$  together
  - find factors of this number that add together to give  $b$
  - both factors will have the same sign as the middle

$$5y^2 - 17y + 6$$

## Factoring Trinomials: $ax^2 \pm bx - c$

- if the trinomial's lead coefficient is not 1, check for a GCF and then
  - multiply  $a$  and  $c$  together
  - find factors of this number that **subtract** to give  $b$
  - the bigger factor will have the same sign as the middle
  - the smaller factor will have the opposite sign as the middle

$$2x^2 + 13x - 24$$

Factor.

$$2m^2 + 3m - 5$$

$$\begin{array}{c} 10 \\ \swarrow \searrow \\ 5 \quad -2 \\ \hline = 3 \end{array}$$

$$\begin{array}{c} 2m^2 + 5m - 2m - 5 \\ \hline m \quad \quad \downarrow \quad -1 \end{array}$$

$$m(2m+5) - 1(2m+5)$$

$$(2m+5)(m-1)$$



Factor.

$$6u^2 + 13u + 2$$

$$\begin{array}{c} 12 \\ \wedge \\ 12 + 1 = 13 \end{array}$$

$$\frac{6u^2 + 12u + u + 2}{\begin{array}{c} 6u \quad \downarrow \quad 1 \end{array}}$$

$$6u(u+2) + 1(u+2)$$

$$(u+2)(6u+1)$$

Factor

$$3k^2 - 8k - 35$$

$$\begin{array}{c} 105 \\ \wedge \\ 7 - 15 = -8 \end{array}$$

$$\frac{3k^2 + 7k - 15k - 35}{\begin{array}{c} k \quad \downarrow \quad -5 \end{array}}$$

$$k(3k+7) - 5(3k+7)$$

$$(3k+7)(k-5)$$

# Assignment:

Split the Middle 1

#1-12