

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.

NAME _____

#101

BELL RINGER

0:03:00

1.) Solve for y . $3x + y = 7$

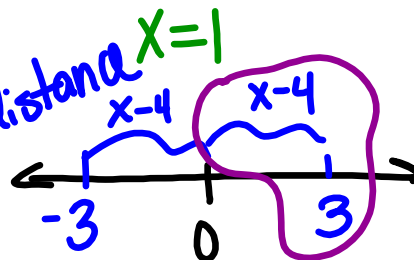
$y = -3x + 7$ $m = -3$
 $I_y: (0, 7)$

2.) Solve $12 - 3x = 9x$

$+3x +3x$ $12 = 12x$

3.) Solve $|x - 4| = 3$.

$x - 4 = -3$



$x - 4 = 3$

$x = 7$

$x = 1$

$x = 1, 7$

Factor.

$$12) b^2 + \underline{13}b + \textcircled{30}$$

$$\begin{array}{c} 30 \\ \swarrow \quad \searrow \\ 3 + 10 = 13 \end{array}$$

$$\underline{b^2 + 3b} + \underline{10b + 30}$$

$$b(\underline{b+3}) + 10(\underline{b+3})$$

$$(\underline{b+3})(\underline{b+10})$$

Factor.

$$20) n^2 - \underline{9}n + \textcircled{18}$$

$$\begin{array}{c} 18 \\ \swarrow \quad \searrow \\ -3 + -6 = -9 \end{array}$$

$$\underline{n^2 - 3n} - \underline{6n + 18}$$

$$n(\underline{n-3}) - 6(\underline{n-3})$$

$$(\underline{n-3})(\underline{n-6})$$

Factor.

$$u^4 - 81v^4$$
$$(u^2 + 9v^2)(u^2 - 9v^2)$$

↓

$$(u^2 + 9v^2)(u + 3v)(u - 3v)$$

Factor.

$$4m^3 + 8m^2 - 3m - 6$$

↓

$$4m^2(m+2) - 3(m+2)$$
$$(m+2)(4m^2 - 3)$$

Factor.

$$x^2 + 18x + 32$$

$$\begin{array}{c} 32 \\ \swarrow \searrow \\ 16 + 2 = 18 \end{array}$$

$$x^2 + 16x + 2x + 32$$

$$\underline{x(x+16)} + \underline{2(x+16)}$$

$$(x+16)(x+2)$$

Factor.

$$x^2 - 14x + 45$$

$$\begin{array}{c} 45 \\ \swarrow \searrow \\ -9 + -5 = -14 \end{array}$$

$$x^2 - 9x - 5x + 45$$

$$\underline{x(x-9)} - \underline{5(x-9)}$$

$$(x-9)(x-5)$$

Factor.

$$x^2 - 13x + 42$$

$$\begin{array}{c} 42 \\ \wedge \\ -7 + -6 = -13 \end{array}$$

$$\underline{x^2 - 7x} - \underline{6x + 42}$$

$$\underline{x(x-7)} - \underline{6(x-7)}$$

$$(x-7)(x-6)$$

Factor.

$$x^2 - 9x + 20$$

$$\begin{array}{c} 20 \\ \wedge \\ -5 + -4 = -9 \end{array}$$

$$\underline{x^2 - 5x} - \underline{4x + 20}$$

$$\underline{x(x-5)} - \underline{4(x-5)}$$

$$(x-5)(x-4)$$

Factor.

$$\begin{array}{l}
 x^2 + 6x + 9 \\
 \underline{x^2 + 3x + 3x + 9} \\
 \quad \quad \quad \downarrow \\
 \underline{x(x+3)} + \underline{3(x+3)} \\
 (x+3)(x+3) \\
 (x+3)^2
 \end{array}$$

$$\begin{array}{c}
 9 \\
 \swarrow \quad \searrow \\
 3 + 3 = 6
 \end{array}$$

Factoring Trinomials:

$$x^2 + bx - c \quad \text{"monic"}$$

- Look for factors of c that **subtract** to give you b
- Split the middle
 - The signs on the middle terms will be opposites
 - The bigger number will have the same sign as the middle
 - The smaller number will have the opposite sign
- Factor by grouping

$$x^2 + 2x - 8$$

Factor.

$$x^2 - x - 20$$

$$\begin{array}{c} 20 \\ \wedge \\ 4 - 5 = -1 \end{array}$$

$$\underline{x^2 + 4x} - \underline{5x - 20}$$

$$x(x+4) - 5(x+4)$$

$$(x+4)(x-5)$$

Factor.

$$x^2 + 29x - 30$$

$$\begin{array}{c} 30 \\ \wedge \\ 30 - 1 = 29 \end{array}$$

$$\underline{x^2 + 30x} - \underline{x - 30}$$

$$x(x+30) - 1(x+30)$$

$$(x+30)(x-1)$$

Factor.

$$x^2 - 4x - 12$$

$$\begin{array}{c} 12 \\ \swarrow \searrow \\ 2 - 6 = -4 \end{array}$$

$$\underline{x^2 + 2x - 6x - 12}$$

$$x(x+2) - 6(x+2)$$

$$(x+2)(x-6)$$

Factor.

$$x^2 + 5x - 6$$

$$\begin{array}{c} 6 \\ \swarrow \searrow \\ 6 - 1 = 5 \end{array}$$

$$\underline{x^2 + 6x - x - 6}$$

$$x(x+6) - 1(x+6)$$

$$(x+6)(x-1)$$

Assignment:

Factoring Trinomials 2

#1-16