

Warm Up

$$\begin{array}{c} \cancel{60} \\ \bullet \\ \cancel{12 + 5} \\ \cancel{17} \end{array}$$



$$\begin{array}{c} \cancel{-42} \\ \bullet \\ \cancel{6 + -7} \\ \cancel{-1} \end{array}$$



Homework Questions

$$\begin{array}{c} \cancel{1, 30} \\ \cancel{2, 15} \\ \cancel{3, 10} \end{array}$$

$$\begin{array}{c} \cancel{-30} \\ \cancel{2} \\ \cancel{-15} \\ \cancel{1} \\ \cancel{3} \end{array}$$

$$\begin{array}{c} \cancel{-84} \\ \cancel{5} \end{array}$$

$$\begin{array}{c} 1, 84 \\ 2, 42 \\ 3, 28 \\ 4, 21 \\ 6, 14 \\ 7, 12 \end{array}$$

10.5 Factoring $x^2 + bx + c$

Goals: • Factor trinomials of the form $x^2 + bx + c$

EQ: What are the steps for factoring?

FACTORIZING $x^2 + bx + c$

$(x + \underline{\quad})(x + \underline{\quad})$

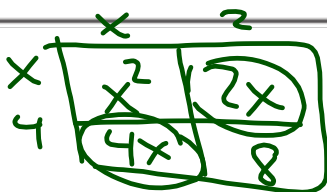
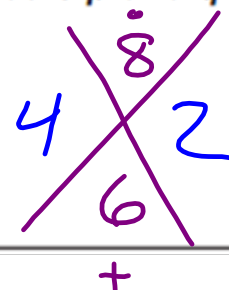
You know from the FOIL method that

$$(x + p)(x + q) = x^2 + (p + q)x + pq.$$

So to factor $x^2 + bx + c$, you need to find numbers p and q such that $p + q = b$ and $pq = c$.

Example: $x^2 + 6x + 8 = (x + \underline{4})(x + \underline{2})$

$\underline{4} + \underline{2} = 6$ and $\underline{4} \cdot \underline{2} = 8$



$x^2 + 6x + 8$ ✓

Example 1: Factor when b and c Are PositiveFactor $x^2 + 5x + 6$.

$$\begin{array}{c} 6 \\ \times \\ \begin{array}{cc} 2 & 3 \\ + & \\ 5 & \end{array} \end{array}$$

$$\begin{array}{c} 1, 6 \\ \textcircled{2, 3} \end{array}$$

$$(x+2)(x+3)$$

	x	3	
x	x^2	$3x$	
2	$2x$	6	

$$x^2 + 5x + 6 \checkmark$$

Example 2: Factor when b is Negative and c is PositiveFactor $x^2 - 8x + 15$.

$$\begin{array}{c} 15 \\ \times \\ \begin{array}{cc} -3 & -5 \\ - & \\ -8 & \end{array} \end{array}$$

$$\begin{array}{c} 1, 15 \\ \textcircled{3, 5} \end{array}$$

$$(x-3)(x-5)$$

$$x^2 - 5x - 3x + 15$$

$$x^2 - 8x + 15$$

Example 3: Factor when b and c are NegativeFactor $x^2 - 4x - 5$.

$$\begin{array}{r} \cancel{-5} \\ \cancel{-5} \quad \cancel{+} \quad \cancel{1} \\ \cancel{-4} \end{array}$$

$$(x-5)(x+1)$$

Example 4: Factor when b is Positive and c is NegativeFactor $x^2 + 8x - 20$.

$$\begin{array}{r} \cancel{-20} \\ 10 \quad \cancel{-} \quad \cancel{2} \\ \cancel{8} \end{array}$$

$$(x-2)(x+10)$$

Try It Factor the trinomial.

1) $x^2 + 11x + 18$

$(x+9)(x+2)$

2) $x^2 - 10x + 21$

4) $x^2 + 3x - 10$

3) $x^2 - 6x - 7$

EQ : Steps to Factor

• $x^2 + bx + c$

$(x \quad)(x \quad)$

10.5 Day 1 Homework

"9.7" wkst #1-20

(Show work on separate sheet)

EC: Check your answers with
FOIL or Box Method