Warm Up

New Seats!

Homework Questions?

Problem 2.3 continued

E Use the Distributive Property to factor each expression.

1. $x^2 + 5x + 2x + 10$ $= (x+2)(x+5)$
2. $x^2 + 11x + 10$ $= (x+10)(x+1)$
3. $x^2 + 3x - 10$ $= (x-2)(x+5)$
4. $x^2 - 8x + 15$ $= (x-3)(x-5)$
5. $15 - 14x - x^2$ $= -1(x-1)(x+15)$ $\rightarrow (-x+1)(x+15)$
   $-x^2 - 14x + 15$ $x^2 + 15x - x - 15$
   $-1(x^2 + 14x - 15)$
6. $2x^2 + 7x + 5$

F Recall the expressions for the area of the rectangle in Problem 2.1: $n^2 - 4$ and $(n-2)(n+2)$. The expression $n^2 - 4$ is a **difference of squares.** After factoring and expanding quadratic expressions, the students in Mr. Towle's class claimed they could use the Distributive Property to show that the expressions for the area of the rectangle in Problem 2.1 were equivalent.

1. Are the students correct? Can you use the Distributive Property to show that $n^2 - 4 = (n-2)(n+2)$? Explain.
2. What are the factors of each expression?
   a. $x^2 - 9$
   b. $x^2 - 25$

3. $x^2 + 3x - 10$

$x - 2x + 5x - 10$

We need 4 terms to fill the box!

Factors of -10	Sum $= 3$
$-1, 10$	9
$-2, 5$	3
$1, -10$	-9
$2, -5$	-3

$= 3x$

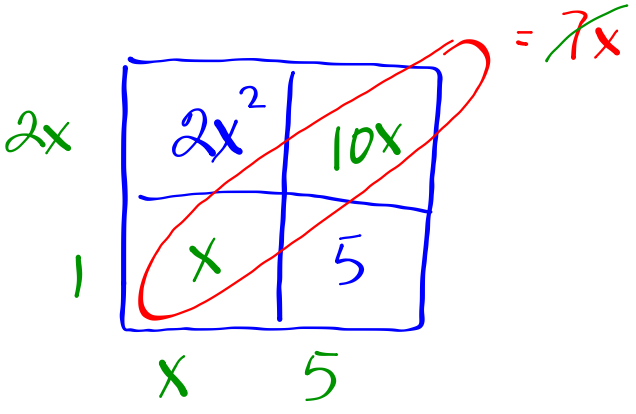
x	x^2	$-2x$
5	$5x$	-10
	x	-2

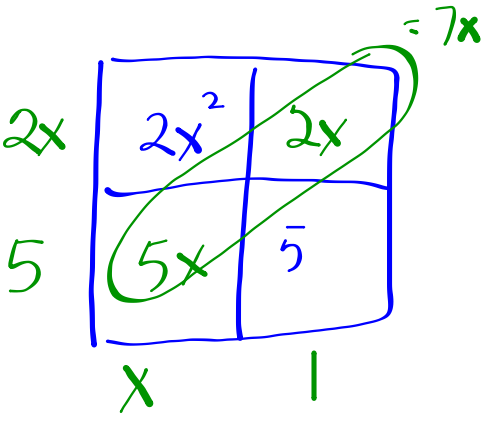
$(x+5)(x-2)$

Factored Form

What made this so hard to factor?

6. $2x^2 + 7x + 5$





$(2x+5)(x+1)$

It isn't just the factors of **c** we need to fill our box, because we now have a value of **a** that is not 1 which is messing things up!

$$ax^2 + bx + c$$

Area/Box Method

Equation: $2x^2+7x+5$

ax^2+bx+c

GCF= 1

a = 2

b = 7

c = 5

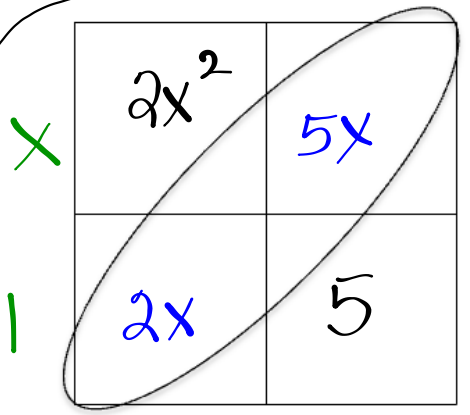
a·c = 10

Factors of a·c	Sum
1, 10	11
2, 5	7

Rewrite Equation with 4 terms:

$2x^2+2x+5x+5$

$= 7x$



Factored Form: $(2x+5)(x+1)$

Factor By Grouping

Equation: $2x^2+7x+5$

GCF= 1

a = 2

b = 7

c = 5

a·c = 10

Factors of a·c	Sum
1, 10	11
2, 5	7

Rewrite Equation with 4 terms:

$2x^2+2x+5x+5$

$2x(x+1)+5(x+1)$

$(x+1)(2x+5)$

Factored Form: $(x+1)(2x+5)$

Classwork

Equation: $x^2 + 14x + 13$

$x+13x$

Rewrite Equation with 4 terms:

$x^2+x+13x+13$

GCF= 1

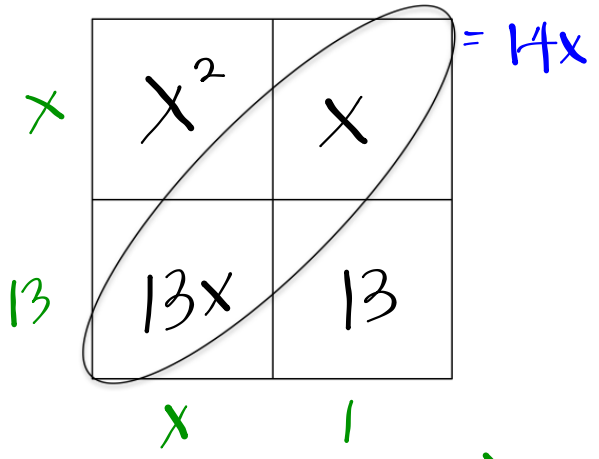
a = 1

b = 14

c = 13

a·c = 13

Factors of a·c	Sum
1, 13	14



Factored Form: $(x+13)(x+1)$

Equation: $x^2 - 3x - 10$

Rewrite Equation with 4 terms:

GCF= _____

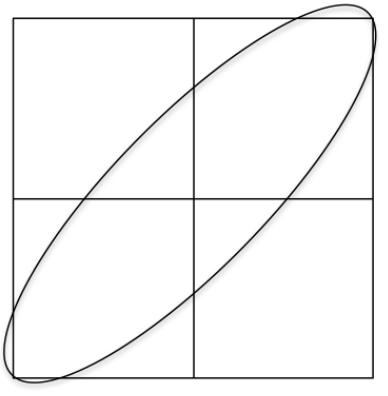
a = _____

b = _____

c = _____

a·c = _____

Factors of a·c	Sum



Factored Form:

Equation: $x^2 - 7x + 12$

Rewrite Equation with 4 terms:

GCF= _____

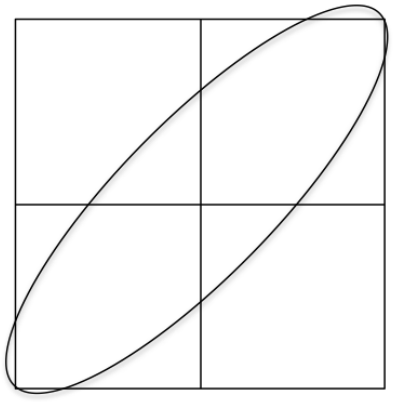
a = _____

b = _____

c = _____

a·c = _____

Factors of a·c	Sum



Factored Form:

Equation: $x^2 - 20x + 36$

Rewrite Equation with 4 terms:

GCF= _____

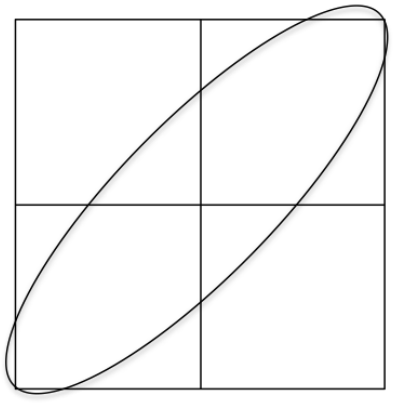
a = _____

b = _____

c = _____

a·c = _____

Factors of a·c	Sum



Factored Form:

Equation: $2x^2 + 5x + 3$

Rewrite Equation with 4 terms:

GCF= _____

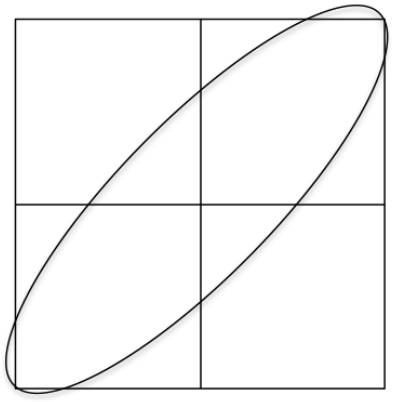
a = _____

b = _____

c = _____

a·c = _____

Factors of a·c	Sum



Factored Form:

Equation: $3x^2 - 4x - 4$

Rewrite Equation with 4 terms:

GCF= _____

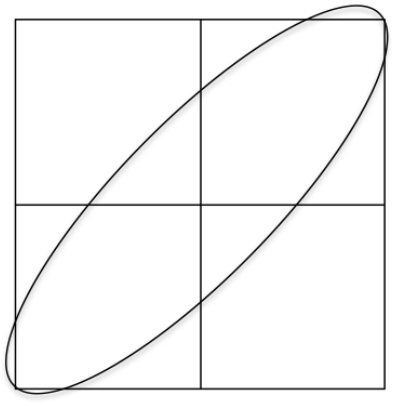
a = _____

b = _____

c = _____

a·c = _____

Factors of a·c	Sum



Factored Form:

Equation: $5x^2 - 21x - 20$

Rewrite Equation with 4 terms:

GCF= _____

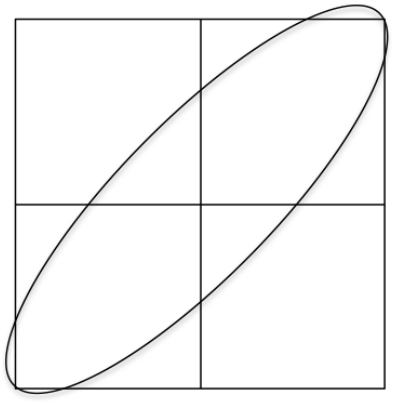
a = _____

b = _____

c = _____

a·c = _____

Factors of a·c	Sum



Factored Form:

Equation: $6x^2 + 7x + 2$

Rewrite Equation with 4 terms:

GCF= _____

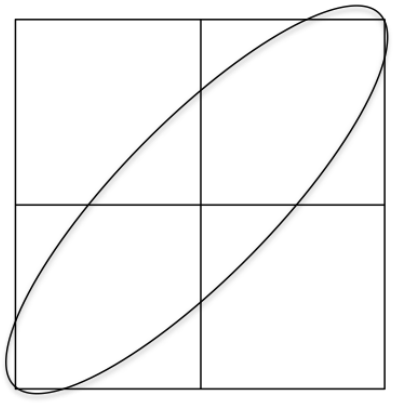
a = _____

b = _____

c = _____

a·c = _____

Factors of a·c	Sum



Factored Form:

Homework

Finish classwork