Factor $a \neq 1$

Factoring by Area Model

1. For each of the boxes below, determine what trinomial is represented in the box.
2. Then find the GCF of each row and column. Write your answer in factored form.

a) Trinomial: $3x^2-2x-5$

Factored Form: $(3x-5)(x+1)$

	3x	-5
1x	$3x^2$	-5x
+1	3x	-5

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

b) Trinomial: $2x^2+3x-9$

Factored Form: $(2x-3)(x+3)$

	2x	-3
1x	$2x^2$	-3x
+3	6x	-9

$6x-3x=3x$

c) Trinomial: $3x^2-8x+4$

Factored Form: $(3x-2)(x-2)$

	1x	-2
3x	$3x^2$	-6x
-2	-2x	4

$-6x-2x=-8x$

d) Trinomial: _____

Factored Form: _____

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

Factoring by Area Model

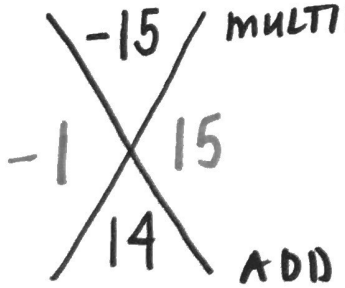
Factor: $4x^2 + 6x - 4$

1. Factor any GCF's from the expression.	$2(2x^2 + 3x - 2)$
2. Multiply the coefficients of the "a" and "c" terms together and place that number in the ~~bottom~~ top of the "number diamond" Place the coefficient of the "b" term in the ~~top~~ bottom Determine what two numbers can be multiplied to get your "a·c" term and added to get your "b" term.	$ax^2 + bx + c$ b a·c $a \cdot c = 2 \cdot -2 = -4$ -1 4 3 $-4 \mid 3$ $-2+2=0$ $-4+1=-3$ $-1+4=3$
3. Create a 2x2 box and place your "a" term in the top left box and "c" term in the bottom right box. Fill the remaining two boxes with the two numbers you found in your number diamond and place an x after them.	$2x$ -1 $1x$: $2x^2$ (a), $-1x$ $+2$: $4x$, -2 (c)
4. Pull out a GCF of each row and column to create the binomials or factors you are looking for.	
5. Check your factors on the outside by multiplying them together to make sure you get all the expressions in your box.	Factored Form: $2(1x+2)(2x-1)$

Using the box method, factor and solve the following trinomials.

a. $5x^2 + 14x - 3$ $1(5x^2+14x-3)$

Factored Form: $1(5x-1)(x+3)$



$-15 \mid 14$
$-5+3=-2$
$-1+15=14$

$5x$ -1
$1x$: $5x^2$, $-1x$
$+3$: $15x$, -3

b. $6x^3 - 15x^2 + 9x$

Factored Form: _____