

FACTORING TRINOMIALS $ax^2 + bx + C$ (for all $a > 0$)

Method: BOX a-b-c

-Draw a box (2x2):

-Enter the First and Last term on the diagonals (make sure the trinomial is in standard form)

-Find a, b, c

-Multiply a by c: $a * c$

-Find the factors of $a * c$ that add (+) or subtract (-) to b

-Enter the factors of $a * c$ that + or - to b on the remaining diagonals (including the "x" next to them)

-Do GCF on all rows and columns

-Put the GCF answers together in parenthesis multiplying the binomials and that's it! () ()

Example: Factor $2x^2 + 13x + 15$

Get a, b, c: $a=2$ $b=13$ $c=15$

Do $a * c$: $a * c = 30$

Get the factors of $a * c$ that + or - to b: $30 = 3 * 10$ and $13 = 3 + 10$, so they are 10 and 3

$2x^2$	
	15

Enter the factors of $a * c$ that + or - to b and enter them in the other two diagonals (including the "x")

$2x^2$	$3x$
$10x$	15

Do GCF in all rows and columns:

$2x^2$	$3x$	x
$10x$	15	5

Put them together in binomials: so the answer is $(x + 5)(2x + 3)$

$2x$ 3