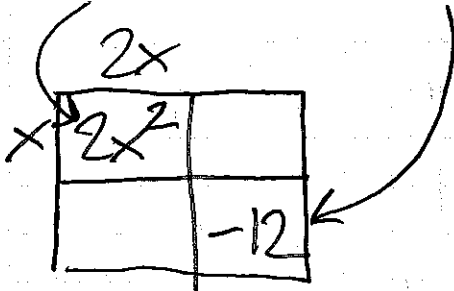


Factoring Notes 2.

Please read Factoring Notes 1 before this.

These notes focus on quadratics where $a \neq 1$
(So there's more than 1 " x^2 " term).

Ex 11 $ax^2 + bx + c$
 $2x^2 - 5x - 12$



1) Start by filling in the ax^2 and c terms.

The only way to get $2x^2$ is $2x \cdot x$. It doesn't matter which goes where.

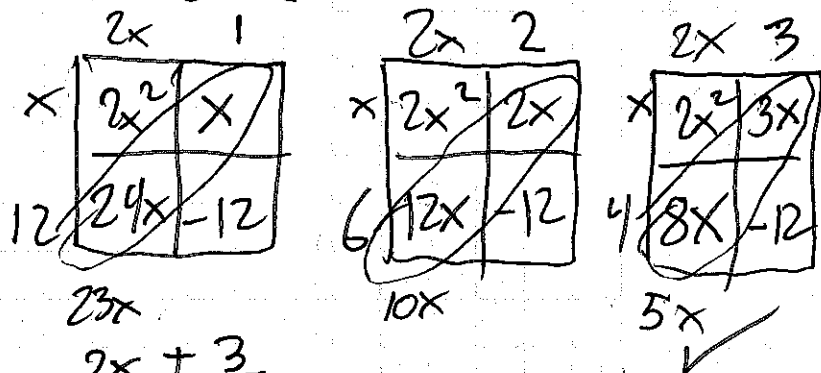
$$-12 = \pm 1 \cdot 12$$

$$\pm 2 \cdot 6$$

$$\pm 3 \cdot 4$$

2) Then, make a list of the factors of c .
Keep in mind that one factor is positive, the other is negative.

3) Try those factors on the outsides. Remember: outsides multiply, & insides add.



4) Last, think about positive & negative. You need to get bx from the inside boxes.

So I want $-5x$. I make $8x$ negative

$$\begin{array}{|c|c|} \hline 2x & 3 \\ \hline x & 2x^2 & 3x \\ \hline -4 & -8x & -12 \\ \hline \end{array} \rightarrow (2x+3)(x-4)$$

Steps: 1) Fill in ax^2 & c

2) List factors of c

3) Try the factors, look for bx

4) Match positives & negatives

Ex 2 | $3x^2 - 5x - 12$

1)

$3x^2$	
	-12

2) $-12 = \pm 1 \cdot 12$
 $\quad \quad \pm 2 \cdot 6$
 $\quad \quad \pm 3 \cdot 4$

3)

	$3x$	12
\times	$3x^2$	$12x$
1	$3x$	12

 ax

	$3x$	6
\times	$3x^2$	$6x$
2	$6x$	12

 $0x$

	$3x$	4
\times	$3x^2$	$4x$
3	$9x$	12

 $5x \checkmark$

4)

	$3x+4$	
\times	$3x^2$	$4x$
-3	$-9x$	-12

 $\rightarrow (3x+4)(x-3)$

Ex 3 | $5x^2 - 22x + 8$

	$5x-2$	
\times	$5x^2$	$-2x$
-4	$-20x$	8

 $\rightarrow (5x-2)(x-4)$