

CTS Notes 2

see read CTS Notes 1 before this.

These notes deal with CTS where $a \neq 1$.

Remember that the constant, c , doesn't fit in the box.

Ex 1) $ax^2 + bx + c$
 $2x^2 + 4x - 7$

First, divide ax^2 & bx by " a ". Don't lose track of " a ".
 $\frac{2x^2 + 4x}{2} = x^2 + 2x$

	$x+1$	
x	x^2	$1x$
$+$	$1x$	1

Then, CTS with the $a=1$ quadratic.
 $-1 \rightarrow (x+1)^2 - 1$

Remember the " a " value. $2(x^2 + 2x) = 2x^2 + 4x$

So $2((x+1)^2 - 1) = 2x^2 + 4x$

Then bring back in " c " from the original problem.

$$2((x+1)^2 - 1) - 7$$

Distribute, & combine like terms.

$$2(x+1)^2 - 2 - 7 = 2(x+1)^2 - 9$$

Steps: 1) Factor out "a"

2) CTS the a=1 quadratic

3) Rewrite with a & c outside of parentheses

4) Distribute & combine like terms.

Ex 2 $3x^2 + 12x - 4$
 $3(x^2 + 4x) - 4$

$$\begin{array}{r|l} x & \\ \hline x^2 & 2x \\ 2x & 4 \end{array} - 4$$

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

$$3(x+2)^2 - 12 - 4 = 3(x+2)^2 - 16$$

Ex 3 $-x^2 + 7x - 23$

$$-1(x^2 - 7x) - 23$$

$$\begin{array}{r|l} x & -3.5 \\ \hline x^2 & 3.5x \\ -3.5 & 12.25 \end{array} - 12.25$$

$$-1((x-3.5)^2 - 12.25) - 23 = -(x-3.5)^2 + 12.25 - 23$$

$$= -(x-3.5)^2 - 10.75$$

Remember Here's
a=-1 here.