3.6 Factoring Trinomials of the form $ax^2 + bx + c$

I. Factoring a common binomial

    a) $xA + yA$ b) $2x(3x - 1) - 3(3x-1)$

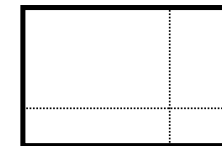   c) $x(x - 1) + y(x - 1) - 3(x-1)$

II. Factoring $ax^2 + bx + c$:

    ex. $6x^2 + 7x + 2$ ⟶   try to represent this with an area model

      another | *method*
        called ↓ *decomposition*

      $6x^2 + 7x + 2$ * _____

                    * find 2 factors of ____ that add up to ___

                    * _____ the middle term into these two factors

                    * group the _____ terms and the _____ terms

                    * factor each group

                    * use binomial factoring to write the trinomial as the product of two binomials

    ex. $6x^2 - 13x + 5$

III. There are many ways to factor a trinomial. Here's another trick; it's called the Criss-Cross method...

ex. $6x^2 - 13x + 5$

* break up the first term into two factors and write them below the first term

* break up the constant term into two factors and do the same

* cross multiply the factor to see if their sum is the b-value

* if so, you now have the correct binomials to factor the trinomial... if not, try switching the factors around until it works.

IV. And now for my favourite method: *simple inspection*

ex. $4x^2 - 4x - 15$

* set up two brackets that will contain your binomial products

* place two factors of the first term in the first position of both brackets

* place two factors of the last term in the second position of both brackets

* perform some quick distribution to see if FOIL yields the middle term; if not move some peices around and try again

Ex. Try these with the technique of your choice

a) $2x^2 - 9x + 18$ b) $9x^2 - 21x + 10$