Ex. Factor $4x^2 + 8x + 3$

a. **First term: top left; last term: bottom rt.**

b. **Fill diagonal by multiplying first & last, then finding factors of that # that add to middle term. (see lrg. X to the side of box)**

c. **Complete diagonal & factor common values to left and top of each row/column.**

$4x^2$	$?x$
$?x$	3

first + last
$4 \times 3 = 12$
mult.
12
$6x$ ╳ $2x$
add
to 8
middle

$\longrightarrow$

Factors of 12
1 & 12
**2 & 6 (add to 8)
3 & 4

$2x$ + 3
↑   ↑

$2x \leftarrow$

+

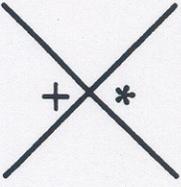$1 \leftarrow$

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

$$4x^2 + 8x + 3 = (2x + 3)(2x + 1)$$

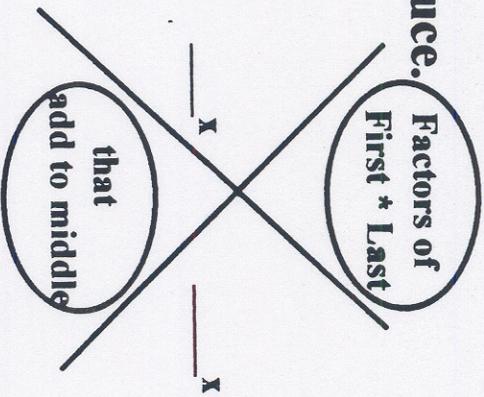*Always check to see if the trinomial can be reduced by a common monomial before beginning box method.

FACTORING TRINOMIALS

For large coefficients, divide by GCF to reduce.

An $*\atop+$ determines x-values.

Complete inside of box by filling in terms.

Take out GCF to left.

Organize GCF on top.

Remember to use FOIL to check!

Factors of
First * Last

that
add to middle

___ x

___ x

1st term	___ x
___ x	last term