Factor: $6x^2 + 13x - 5$

$6 \cdot -5 = -30$

-1	30
1	-30
-2	15
2	-15
-3	10
3	-10
-5	6
5	-6

$6x^2 - 2x + 15x - 5$

$2x(3x - 1) + 5(3x - 1)$

$= (3x - 1)(2x + 5)$

Factoring Trinomials - box method

* must factor GCF first

* a bit of a shortcut

First step is the same as decomposition

$3v^2 + 16v + 5$ → $3 \cdot 5 = 15$

$1, 15$

$1v \quad 15v$

	$3v$	1
v	$3v^2$	$1v$
5	$15v$	5

← take the factors and place them (order doesn't matter)

→ take the common factor out in each row & column.

$= (3v + 1)(v + 5)$

*check

$= 3v^2 + 15v + 1v + 5 = 3v^2 + 16v + 5$ ✓

Factor: $15g^2 - g - 2$

$15 \cdot -2 = -30$

$-6, 5$

	$5g$	-2
$3g$	$15g^2$	$-6g$
1	$5g$	-2

<- if the first term in the row or column is negative then the common factor is also negative

$$15g^2 - g - 2 = (5g - 2)(3g + 1)$$

Factor: $5x^2 + 19x - 4$

$5 \cdot -4 = -20$

$-1 \quad 20$

	$5x$	-1
x	$5x^2$	$-1x$
4	$20x$	-4

$= (5x - 1)(x + 4)$

Factoring Complex Trinomials - by inspection (guess and check)

* this works best with small numbers.

Factor: $2x^2 - 5x - 3$

± 1	± 3
1	-3
-3	+1
3	-1

$(2x + 1)(x - 3)$

x

$-6x$

$-5x$ ✓