$6x^2+41x+70$

$(\quad)(\quad)$

$3x \qquad 2x$

$6x \qquad x$

7	10
10	7
35	2
2	35

Split the middle term

ax^2+bx+c

$6x^2+41x+70$

$6 \cdot 70 = 420$

$42 \cdot 10$

$20 \cdot 21$

$(6x^2+20x)+(21x+70)$

$2x(3x+10)+7(3x+10)$

$(3x+10)(2x+7)$

Steps

1) Multiply $a \cdot c$
2) Find Factors of $a \cdot c$ that add together to get "b."
3) Replace "b" with 2 factors from Step #2
4) Group 1st-2nd together
   Group 3rd-4th together
5) Find GCF for both sets of parenthesis
6) Values in parenthesis go in one set of parenthesis and GCF's go in other set

$10m^2+23m+6$

$10 \cdot 6 = \underline{60}$

$20 \cdot 3$

$(10m^2+20m)+(3m+6)$

$10m\underline{(m+2)}+3\underline{(m+2)}$

$(10m+3)(m+2)$

$6r^2 - 17r + 12$

$6 \cdot 12 = \underline{72}$

$-9 \cdot -8$

$(6r^2 - 9r)(-8r + 12)$

$(-6r + 12)$

$3r(2r-3) - 4(2r-3)$

$4(\underline{-2r+3})$

$(3r-4)(2r-3)$