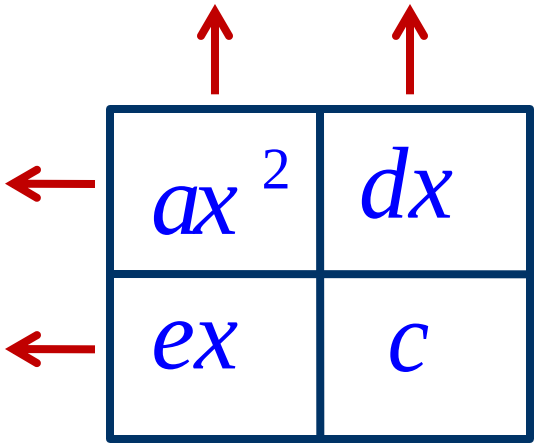
Factoring Quadratics ax^2+bx+c

(1) Factor the common factor of coefficients if possible and to change the coefficient of x^2 to a positive integer.

(2) Find two integers with **Product= a . c** and **Sum= b.**

Let them be d and e.

(3) Use the following table to find the common factors of columns and rows:



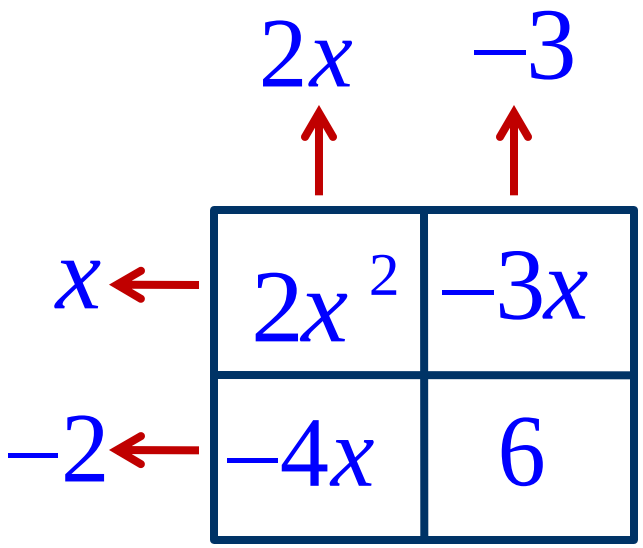
Example: Factor $2x^2 - 7x + 6$

(1) The coefficients 2, -7 and 6 have no common factors and the coeffiecient of x^2 is positive.

(2) Find two integres with Product $= 2 \times 6 = 12$ and Sum = -7.

The integers are -3 and -4.

(3) Use the following table to find the common factors of columns and rows:



So the factor is (2x-3)(x-2)

Example: Factor $12x^2 - 24x - 15$

(1) The common factor of coefficients 12, -24 and -15 is 3. Thus:

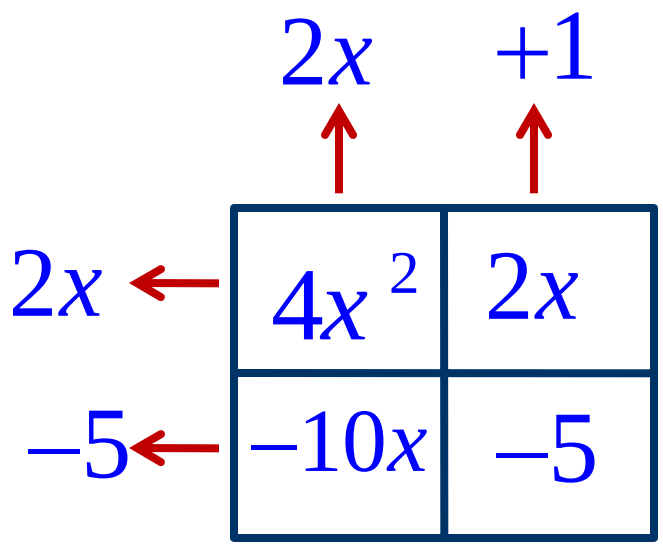
$12x^2 - 24x - 15 = 3(4x^2 - 8x - 5)$. Now factor $4x^2 - 8x - 5$.

(2) Find two integres with Product$= 4 \times (-5) = -20$ and Sum= -8.

The integers are $+2$ and -10.

(3) Use the following table to find the common factors of columns and rows

So the factor is $3(2x+1)(2x-5)$



Example: Factor $-x^2+x+6$

(1) The coefficients -1, +1 and 6 have no common factors, but the coeffiecient of x^2 is negative. Thus we write:

$-x^2+x+6=-(x^2-x-6)$. Now factor x^2-x-6.

(2) Find two integres with Product$=1\times(-6)=-6$ and Sum$=$ -1.

The integers are $+2$ and -3.

(3) Use the following table to find the common factors of columns and rows

So the factor is -(x-3)(x+2)