

The AC Method

Proper Form for AC : $ax^{2(n)} + bx^n + C = 0$

Ex : $6x^2 + 19x + 10 = 0$

$A=6 \quad B=19 \quad C=10$

A · C	B
60	19
<u>4 × 15</u>	<u>4 + 15</u>

$1 \times 60 = 60 \quad 1 + 60 \neq 10 \quad \text{No}$

$3 \times 20 = 60 \quad 3 + 20 \neq 10 \quad \text{No}$

$4 \times 15 = 60 \quad 4 + 15 = 19 \quad \text{Yes}$

$6x^2 + 19x + 10 = 0$

$6x^2 + 4x + 15x + 10 = 0$

$(2x)(3x+2) + 5(3x+2) = 0$

$(3x+2)(2x+5) = 0$

$3x+2=0, \quad 2x+5=0$

$3x=-2 \quad 2x=-5$

$x = -2/3, \quad -5/2$

* Always check if possible to take out a GCF *

① order problem by descending variable exponents ✓

② Check that lead exponent is double the second $2 = 2(1)$ ✓

③ Label variables

④ Multiply A·C and create table

⑤ Find two numbers that multiply to AC and add to B

⑥ Replace middle term with the factors found. Carry first and last term straight down.

⑦ Group and factor out GCF

⑧ Check that inside of parentheses math exactly and "Factor it out"

Create second term from leftovers.

⑨ Set each term to 0 and solve for x

* Extra examples and answers on back side.

Factor the following

$$\textcircled{1} x^2 - 7x - 18 = (x-9)(x+2)$$

$$\textcircled{2} m^2 - 9m + 8 = (m-1)(m-8)$$

$$\textcircled{3} 7k^2 + k = k(7k+1)$$

$$\textcircled{4} 30n^2b - 87nb + 30b \\ = 3b(2n-5)(5n-2)$$

$$\textcircled{5} 9x^2 + 7x - 56 = \text{Prime} \\ \text{by AC} \rightarrow \text{use quadratic}$$

$$\textcircled{6} x^3 + x - 2 = \text{Prime}$$

$$\textcircled{7} 7x^2 + 10xy + 3y^2 \\ = (7x+3y)(x+y)$$

$$\textcircled{8} 8m^2 - 6mn - 27n^2 \\ = (4m-9n)(2m+3n)$$

*many more examples
can be found online by
googling "Factoring
worksheets with solutions"

Good Luck!