

Factoring $ax^2 + bx + c$ Guide Notes

Factoring ax^2+bx+c :

let: $ax^2 + bx + c = (ex + f)(gx + h)$

where bx is the sum of $(f)(gx)$ and $(ex)(h)$; ax^2 is the product of ex and gx ; and c is a product of f and h .

Step 1: split ax^2 into its factor, ex and gx ;

Step 2: Split the last term c , into two factors f and h whose product is c ;

Step 3: make sure that the sum of the product $(f)(gx)$ and $(ex)(h)$ is equal to the middle term bx .

Step 3: Write the usual binomial factor such as $ax^2 + bx + c = (ex + f)(gx + h)$ where bx is the sum of the middle term (inner and outer term).

Sample problem 1: Factor the following polynomials in $ax^2 + bx + c$ form.

1. $2a^2 + 7a + 6$

$2. 6x^2 - 10x + 4$

3. $4b^2 - 16b + 16$

$4. 8y^2 + 44y + 56$

5. $2x^2 - 10x - 300$