

Factoring Special Cases Guide Notes

Factoring Special Cases:

Type 1: Difference of Two Square

$$x^2 - y^2 = (x + y)(x - y)$$

conditions: The first and last terms are both perfect squares and separated by a subtraction sign.

Steps in Factoring Difference of Two Square:

Step 1: extract the square root of the first and last term; and

Step 2: write the square root of each term in two parenthesis and separate one of them by (+) sign and (-) sign on the other one.

Type 2: Perfect Square Trinomials

$$x^2 + 2xy + y^2 = (x + y)^2$$

$$x^2 - 2xy + y^2 = (x - y)^2$$

conditions: The first and last term are perfect squares and the middle term is two times the product of the first and last term.

Step in Factoring a Perfect Square Trinomials:

Step 1: extract the square root of the first and last term; and

Step 2: write this two term of binomial in the 2nd power, following the sign of the middle term of the polynomial.

Sample problem 1: Factor the following difference of two square.

1. $a^2 - 81$

$2. 16x^2 - 100$

3. $4b^2 - 16$

$4. 25y^2 - 4$

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Sample problem 2: Factor the following Perfect square trinomial.

5. $4a^2 + 16a + 16$

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

7. $4b^2 - 16b + 16$

8. $4y^2 + 32y + 64$