

10-2-18 Examples:

1. $9x^2 - 1 = (3x + 1)(3x - 1)$

$\sqrt{9x^2} = 3x$ $\sqrt{1} = 1$

2. $50x^2 - 8$ factors of 8: $= 2(5x + 2)(5x - 2)$

$25x^2 - 4$ $(2)4$

$\sqrt{25x^2} = 5x$ $\sqrt{4} = 2$

3. $64x^2 + 9$ * can't factor because of + sign

4. $100x^2 - 121 = (10x + 11)(10x - 11)$

$\sqrt{100x^2} = 10x$ $\sqrt{121} = 11$

5. $\frac{108x^2 - 147}{3} = 3(6x + 7)(6x - 7)$

$36x^2 - 49$

$(1+x)(1-x)$

$(1-x)(1+x)$

Difference of Squares

10-2-18

Factoring Difference of Squares

1. Degree must be 2 (quadratic)

2. Has 2 terms (binomial)

3. #'s must be perfect squares

* if no perfect squares, look for GCF *

$$ax^2 = c$$

↑
Difference
(subtraction)

Steps for Factoring Success

1. Look for GCF, then take the square root of 1st term. This is the 1st term in the binomials.
2. Take the square root of the 2nd term. This is the 2nd term in each binomial.
3. Signs in the binomials are one of each: + and -

$$ax^2 - c$$
$$(\sqrt{ax^2} + \sqrt{c})(\sqrt{ax^2} - \sqrt{c})$$

Examples:

Factor $81x^2 - 36$

2 terms? ✓

Difference? ✓

Degree 2? ✓

Perfect Square? ✓

Perfect Squares

$1^2 = 1$

$2^2 = 4$

$3^2 = 9$

$4^2 = 16$

$5^2 = 25$

$6^2 = 36$

$7^2 = 49$

$8^2 = 64$

$9^2 = 81$

$10^2 = 100$

$11^2 = 121$

$12^2 = 144$