

Factoring Special Products

Objective 1: Perfect Square Trinomials

$$(a + b)^2 = \underline{\hspace{10em}}$$

$$(a - b)^2 = \underline{\hspace{10em}}$$

When square a binomial, we get a _____ trinomial.

The first term of the trinomial is a _____, the second term of the trinomial is _____ the product of the first and second terms of the binomial, and the third term of the trinomial is a _____.

Exercise 1: Square the binomials below.

a) $x + 3$

b) $3x - 1$

Exercise 2: Determine whether the following trinomials are perfect squares. Factor if possible.

a) $4x^2 + 12x + 9$

b) $x^6 - 4x^3y^5 + y^{10}$

c) $49x^2 - 56xy + 16y^2$

d) $4x^8 + 20x^4 + 25$

Objective 2: Difference of Squares

$$(a+b)(a-b) = \underline{\hspace{4cm}}.$$

When a binomial is multiplied by its conjugate, the result is a _____ of squares.

Exercise 3: Factor the following.

a) $9x^4 - 16$

b) $x^2 - 81y^6$

Objective 3: Sum and Difference of Cubes

Sum of Cubes

$$a^3 + b^3 = \underline{\hspace{4cm}}$$

Difference of Cubes

$$a^3 - b^3 = \underline{\hspace{4cm}}$$

The sum/difference of cubes is the product of a _____ and a _____.

Exercise 4: Factor the following.

a) $8x^3 + 125y^6$

b) $x^{12} - 125$