

## Difference of Two Perfect Squares

$a^2$  is perfect square  $\swarrow$

$b^2$  is perfect square  $\nwarrow$

$$a^2 - b^2$$

$\uparrow$   
Minus Sign  
(difference)

## Factoring the Difference of Two Perfect Squares

$$a^2 - b^2 = (a + b)(a - b)$$

Factor the Difference of Two Perfect Squares

$$a^2 - b^2 = (a + b)(a - b)$$

$$x^2 - 25$$

$$x^2 - 64$$

$$a^2 - 1$$

Recognizing the Difference of Two Perfect Squares

$$25x^2 - 4y^2$$

Factor the **Difference** of **Two Perfect Squares**

$$a^2 - b^2 = (a + b)(a - b)$$

$$9a^2 - 121$$

$$16k^2 - 49$$

$$81m^2 - 4n^2$$

**Difference** of **Two Perfect Squares**

The diagram shows the expression  $a^2 - b^2$  with three annotations: a red arrow points from the text " $a^2$  is perfect square" to the  $a^2$  term; a blue arrow points from the text " $b^2$  is perfect square" to the  $b^2$  term; and a green arrow points from the text "Minus Sign (difference)" to the minus sign between the two terms.

$$a^2 - b^2$$

$a^2$  is perfect square

$b^2$  is perfect square

Minus Sign (difference)

Factoring the  
Difference of Two Perfect Squares

The diagram illustrates the factoring process for the difference of two perfect squares. The equation  $a^2 - b^2 = (a + b)(a - b)$  is shown with color-coding:  $a^2$  is red,  $-$  is green,  $b^2$  is blue,  $a$  is red,  $+$  is green,  $b$  is blue,  $a$  is red,  $-$  is green, and  $b$  is blue. Two blue curved arrows originate from the  $a^2$  and  $b^2$  terms and point to the  $a$  and  $b$  terms in the first binomial factor  $(a + b)$ . Two red curved arrows originate from the  $-$  and  $b^2$  terms and point to the  $a$  and  $b$  terms in the second binomial factor  $(a - b)$ .

$$a^2 - b^2 = (a + b)(a - b)$$