

# Difference of Two Squares

⑥  $x^2 - 16$

↓

$$\sqrt{x^2} = x$$
$$\sqrt{16} = 4$$

$$Ax^2 - B \rightarrow \frac{\sqrt{Ax^2}}{\sqrt{B}} \rightarrow (\sqrt{Ax^2} + \sqrt{B})(\sqrt{Ax^2} - \sqrt{B})$$

$$(x+4)(x-4) \rightarrow x^2 - \underline{4x} + \underline{4x} - 16$$

⑦  $x^4 - 81$

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

$$(x^2 - 9)(x^2 + 9)$$

↓

$$(x+3)(x-3)(x^2+9)$$

⑧  $81n^4 - 1$   $\sqrt{81n^4} = 9n^2$

$$(9n^2 + 1)(9n^2 - 1) \quad \sqrt{1} = 1$$

$$(9n^2 + 1)(3n + 1)(3n - 1) \quad \begin{matrix} \sqrt{9n^2} = 3n \\ \sqrt{1} = 1 \end{matrix}$$

⑨  $36x^2 - 12x + 1$

$$AC = 36$$

-6, -6

$$(36x^2 - 6x)(-6x + 1)$$

$$6x(6x - 1) - 1(6x - 1)$$

$$(6x - 1)(6x - 1) \rightarrow (6x - 1)^2$$

# Factor Completely

$$y^4 - 81$$

$$\sqrt{y^4} = y^2 \quad \sqrt{81} = 9$$

$$(y^2 + 9)(y^2 - 9) \quad \sqrt{y^2} = y \quad \sqrt{9} = 3$$

$$(y^2 + 9)(y + 3)(y - 3)$$

$$y^8 - 12$$

Prime

$$\boxed{x^2 - 25} \rightarrow x^2 + 0x - 25$$

$$A \cdot C = -25$$
$$\underline{-5, 5}$$

$$(x^2 - 5x) + (5x - 25)$$

$$x(x - 5) + 5(x - 5)$$

$$(x + 5)(x - 5)$$

$$\begin{array}{cccc} \uparrow & \uparrow & \uparrow & \uparrow \\ \sqrt{A} & \sqrt{C} & -\sqrt{A} & -\sqrt{C} \end{array}$$

$$\bullet 242 - 32x^2y^2$$

$$2(121 - 16x^2y^2)$$

↓

$$2(11 + 4xy)(11 - 4xy)$$

$$121 - 16x^2y^2$$

Prime