

## 88

## 公式による因数分解

年 組 番 名前

## ● 例題 1 ●

次の式を因数分解しなさい。

$$\begin{aligned} (1) \quad & x^2 + 6x + 9 \\ &= x^2 + 2 \times 3 \times x + 3^2 \\ &= (x + 3)^2 \end{aligned}$$

$$\begin{aligned} (2) \quad & 4x^2 - 12xy + 9y^2 \\ &= (2x)^2 - 2 \times 2x \times 3y + (3y)^2 \\ &= (2x - 3y)^2 \end{aligned}$$

問1 次の式を因数分解しなさい。

$$\begin{aligned} (1) \quad & x^2 + 4x + 4 \\ &= x^2 + 2 \times 2 \times x + 2^2 \\ &= (x + 2)^2 \end{aligned}$$

答.  $(x + 2)^2$

$$\begin{aligned} (2) \quad & x^2 - 4x + 4 \\ &= x^2 - 2 \times 2 \times x + 2^2 \\ &= (x - 2)^2 \end{aligned}$$

答.  $(x - 2)^2$

$$\begin{aligned} (3) \quad & x^2 + 10x + 25 \\ &= x^2 + 2 \times 5 \times x + 5^2 \\ &= (x + 5)^2 \end{aligned}$$

答.  $(x + 5)^2$

$$\begin{aligned} (4) \quad & x^2 - 2x + 1 \\ &= x^2 - 2 \times 1 \times x + 1^2 \\ &= (x - 1)^2 \end{aligned}$$

答.  $(x - 1)^2$

$$\begin{aligned} (5) \quad & x^2 + 16x + 64 \\ &= x^2 + 2 \times 8 \times x + 8^2 \\ &= (x + 8)^2 \end{aligned}$$

答.  $(x + 8)^2$

$$\begin{aligned} (6) \quad & x^2 + 6xy + 9y^2 \\ &= x^2 + 2 \times x \times 3y + (3y)^2 \\ &= (x + 3y)^2 \end{aligned}$$

答.  $(x + 3y)^2$

$$\begin{aligned} (7) \quad & x^2 - 8xy + 16y^2 \\ &= x^2 - 2 \times x \times 4y + (4y)^2 \\ &= (x - 4y)^2 \end{aligned}$$

答.  $(x - 4y)^2$

$$\begin{aligned} (8) \quad & 16x^2 - 56xy + 49y^2 \\ &= (4x)^2 - 2 \times 4x \times 7y + (7y)^2 \\ &= (4x - 7y)^2 \end{aligned}$$

答.  $(4x - 7y)^2$

## ● 例題 2 ●

次の式を因数分解しなさい。

$$\begin{aligned} (1) \quad & x^2 - 36 \\ &= x^2 - 6^2 \\ &= (x + 6)(x - 6) \end{aligned}$$

$$\begin{aligned} (2) \quad & 4x^2 - 9y^2 \\ &= (2x)^2 - (3y)^2 \\ &= (2x + 3y)(2x - 3y) \end{aligned}$$

問2 次の式を因数分解しなさい。

$$\begin{aligned} (1) \quad & x^2 - 9 \\ &= x^2 - 3^2 \\ &= (x + 3)(x - 3) \end{aligned}$$

答.  $(x + 3)(x - 3)$

$$\begin{aligned} (2) \quad & x^2 - 16 \\ &= x^2 - 4^2 \\ &= (x + 4)(x - 4) \end{aligned}$$

答.  $(x + 4)(x - 4)$

$$\begin{aligned} (3) \quad & x^2 - 1 \\ &= x^2 - 1^2 \\ &= (x + 1)(x - 1) \end{aligned}$$

答.  $(x + 1)(x - 1)$

$$\begin{aligned} (4) \quad & x^2 - 25 \\ &= x^2 - 5^2 \\ &= (x + 5)(x - 5) \end{aligned}$$

答.  $(x + 5)(x - 5)$

$$\begin{aligned} (5) \quad & x^2 - 81 \\ &= x^2 - 9^2 \\ &= (x + 9)(x - 9) \end{aligned}$$

答.  $(x + 9)(x - 9)$

$$\begin{aligned} (6) \quad & 9x^2 - 4 \\ &= (3x)^2 - 2^2 \\ &= (3x + 2)(3x - 2) \end{aligned}$$

答.  $(3x + 2)(3x - 2)$

$$\begin{aligned} (7) \quad & x^2 - 4y^2 \\ &= x^2 - (2y)^2 \\ &= (x + 2y)(x - 2y) \end{aligned}$$

答.  $(x + 2y)(x - 2y)$

$$\begin{aligned} (8) \quad & 25x^2 - 36y^2 \\ &= (5x)^2 - (6y)^2 \\ &= (5x + 6y)(5x - 6y) \end{aligned}$$

答.  $(5x + 6y)(5x - 6y)$