

因数分解 計算のまとめ発展1

学習日 月 日

/ 点

■ 次の式を因数分解しなさい。

$$(1) \quad 3x^2 - 27$$

$$(2) \quad 2x^2 - 8x - 24$$

$$(3) \quad ax^2 - 2ax - 15a$$

$$(4) \quad \frac{1}{4}x^2 - \frac{1}{9}y^2$$

$$(5) \quad \frac{1}{2}x^2 - \frac{5}{2}x + 3$$

$$(6) \quad (x + y)^2 - 9$$

$$(7) \quad (x - 2)^2 - 5(x - 2) - 6$$

$$(8) \quad x^2 - y^2 + 9y - 9$$

解答

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

$$\begin{aligned}(2) \quad & 2 (x^2 - 4x - 12) \\ & = 2 (x + 2) (x - 6)\end{aligned}$$

$$\begin{aligned}(3) \quad & a (x^2 - 2x - 15) \\ & = a (x + 3) (x - 5)\end{aligned}$$

$$(4) \quad \left(\frac{1}{2}x + \frac{1}{3}y \right) \left(\frac{1}{2}x - \frac{1}{3}y \right)$$

$$\begin{aligned}(5) \quad & \frac{1}{2} (x^2 - 5x + 6) \\ & = \frac{1}{2} (x - 2) (x - 3)\end{aligned}$$

$$\begin{aligned}(6) \quad & x + y = M \quad \text{とおく} \\ & M^2 - 9 = (M + 3) (M - 3) \\ & \quad = (x + y + 3) (x + y - 3)\end{aligned}$$

$$\begin{aligned}(7) \quad & x - 2 = M \quad \text{とおく} \\ & M^2 - 5M - 6 \\ & = (M + 1) (M - 6) \\ & = (x - 2 + 1) (x - 2 - 6) \\ & = (x - 1) (x - 8)\end{aligned}$$