

4

整式の加減・~~たし算~~ひき算

(例1) 次の計算をせよ。

$$\begin{aligned} (1) \quad & (\underline{x^3 - 2x^2 - 3x + 1}) \oplus (\underline{3x^2 - x^2 + 5x - 2}) \\ &= (1+3)x^3 + (-2-1)x^2 + (-3+5)x + (1-2) \\ &= 4x^3 - 3x^2 + 2x - 1, \end{aligned}$$

$$\begin{aligned} (2) \quad & (\underline{x^3 - 2x^2 - 3x + 1}) \ominus (\underline{3x^2 - x^2 + 5x - 2}) \\ &= \underline{x^3 - 2x^2 - 3x + 1} - \underline{3x^2 + x^2 - 5x + 2} \\ &= (1-3)x^3 + (-2-1)x^2 + (-3-5)x + (1-2) \\ &= -2x^3 - x^2 - 8x + 3, \end{aligned}$$

(例2) $A = x^3 - 2x^2y + y^3$, $B = 3x^2y - xy^2$, $C = 2x^3 - 2xy^2 + 3y^3$ であるとき

$4(A+B-C) - (A+2B-3C)$ を計算せよ。

point

どうやったら計算量を減らせるか。つねに意識

$$\begin{aligned} & 4(\overbrace{A+B-C}) - (A+2B-3C) \quad \leftarrow \text{先に計算} \\ &= 4A + 4B - 4C - A - 2B + 3C \\ &= 3A + 2B - C \\ &= 3(x^3 - 2x^2y + y^3) + 2(3x^2y - xy^2) - (2x^3 - 2xy^2 + 3y^3) \\ &= 3x^3 - 6x^2y + 3y^3 + 6x^2y - 2xy^2 - 2x^3 + 2xy^2 - 3y^3 \\ &= x^3, \end{aligned}$$