



2016年経済(1期)第2問

2 $x = \sqrt{7} + \sqrt{3}$, $y = \sqrt{7} - \sqrt{3}$ のとき, 次の設問に答えよ.

- (1) $x + y$ を計算せよ.
 (2) xy を計算せよ.
 (3) $x^2 + y^2$ を計算せよ.
 (4) $x^3 + y^3$ を計算せよ.

$$\begin{aligned} (1) \quad x + y &= \sqrt{7} + \sqrt{3} + \sqrt{7} - \sqrt{3} \\ &= \underline{2\sqrt{7}} \text{ ,,} \end{aligned}$$

$$\begin{aligned} (2) \quad xy &= (\sqrt{7} + \sqrt{3})(\sqrt{7} - \sqrt{3}) \\ &= 7 - 3 \\ &= \underline{4} \text{ ,,} \end{aligned}$$

$$\begin{aligned} (3) \quad x^2 + y^2 &= (x + y)^2 - 2xy \\ &= (2\sqrt{7})^2 - 2 \cdot 4 \\ &= 28 - 8 \\ &= \underline{20} \text{ ,,} \end{aligned}$$

$$\begin{aligned} (4) \quad x^3 + y^3 &= (x + y)^3 - 3xy(x + y) \\ &= (2\sqrt{7})^3 - 3 \cdot 4 \cdot 2\sqrt{7} \\ &= 56\sqrt{7} - 24\sqrt{7} \\ &= \underline{32\sqrt{7}} \text{ ,,} \end{aligned}$$