

2015年一般Ⅱ期第1問


 数理
石井K

$$\boxed{1} \quad x = \frac{2}{\sqrt{3}+3}, \quad y = \frac{2}{\sqrt{3}-3} \text{ のとき}$$

$$x - y = \frac{\boxed{2}}{\boxed{ア}}, \quad xy = -\frac{\boxed{イ}}{\boxed{ウ}}, \quad x^2 + y^2 = \frac{\boxed{エ}}{\boxed{オ}}$$

となる。

$$\begin{aligned} x - y &= \frac{2}{\sqrt{3}+3} - \frac{2}{\sqrt{3}-3} \\ &= \frac{2(\sqrt{3}-3) - 2(\sqrt{3}+3)}{(\sqrt{3}+3)(\sqrt{3}-3)} \\ &= \frac{-12}{3-9} \\ &= \frac{2}{3} \end{aligned}$$

$$\begin{aligned} xy &= \frac{4}{(\sqrt{3}+3)(\sqrt{3}-3)} \\ &= \frac{4}{3-9} \\ &= -\frac{2}{3} \end{aligned}$$

$$\begin{aligned} x^2 + y^2 &= (x - y)^2 + 2xy \\ &= 2^2 + 2 \cdot \left(-\frac{2}{3}\right) \\ &= \frac{8}{3} \end{aligned}$$