

式の値

(1)  $x + y = \sqrt{6}, xy = -3$  のとき、次の式の値を求めなさい。

$$\begin{aligned} \textcircled{1} \quad x^2 + y^2 \quad (x+y)^2 - 2xy &= \sqrt{6}^2 - 2 \times (-3) \\ &= 6 + 6 = \underline{12} \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad x^2 + 3xy + y^2 \quad (x+y)^2 + xy &= \sqrt{6}^2 - 3 = 6 - 3 = \underline{3} \end{aligned}$$

(2)  $x - y = \sqrt{3} - \sqrt{2}, xy = \sqrt{6}$  のとき、次の式の値を求めなさい。

$$\begin{aligned} \textcircled{1} \quad x^2 + y^2 \quad (x-y)^2 + 2xy &= (\sqrt{3} - \sqrt{2})^2 + 2\sqrt{6} \\ &= 3 - 2\sqrt{6} + 2 + 2\sqrt{6} = \underline{5} \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad x^2 - 5xy + y^2 \quad (x-y)^2 - 3xy &= (\sqrt{3} - \sqrt{2})^2 - 3\sqrt{6} \\ &= 3 - 2\sqrt{6} + 2 - 3\sqrt{6} = \underline{5 - 5\sqrt{6}} \end{aligned}$$

(3)  $x - 2y = \sqrt{3} - 2, xy = -\sqrt{3}$  のとき、次の式の値を求めなさい。

$$\textcircled{1} \quad x^2 + 4y^2 \quad (x-2y)^2 + 4xy = (\sqrt{3} - 2)^2 - 4\sqrt{3}$$

$$\begin{aligned} \textcircled{2} \quad x^2 + xy + 4y^2 &= 3 - 4\sqrt{3} + 4 - 4\sqrt{3} \\ &= \underline{7 - 8\sqrt{3}} \end{aligned}$$

$$\begin{aligned} (x-2y)^2 + 5xy &= (\sqrt{3} - 2)^2 - 5\sqrt{3} \\ &= 3 - 4\sqrt{3} + 4 - 5\sqrt{3} \\ &= \underline{7 - 9\sqrt{3}} \end{aligned}$$