

平方根 いろいろな計算3

名前

/7 点

■ 次の計算をなさい。

(1) $(3\sqrt{2} + 4)(3\sqrt{2} - 5)$

(2) $(\sqrt{3} - 1)(2\sqrt{3} - 5)$

(3) $(3 - \sqrt{5})(\sqrt{5} + 3)$

(4) $(4\sqrt{2} - 3)^2$

(5) $(2\sqrt{5} - 1)^2 + \sqrt{125}$

(6) $(\sqrt{12} + 1)(\sqrt{12} + 5) - (\sqrt{3} + 1)$

(7) $(\sqrt{10} - \sqrt{5})^2 - (1 + \sqrt{5})(1 - \sqrt{5})$

解答

$$\begin{aligned}
 (1) & (3\sqrt{2})^2 + (4-5)3\sqrt{2} + 4 \times (-5) \\
 &= 18 - 3\sqrt{2} - 20 \\
 &= -2 - 3\sqrt{2}
 \end{aligned}$$

$$\begin{aligned}
 (2) & \sqrt{3} \times 2\sqrt{3} - 2\sqrt{3} - 5\sqrt{3} + 5 \\
 &= 6 - 7\sqrt{3} + 5 \\
 &= 11 - 7\sqrt{3}
 \end{aligned}$$

$$\begin{aligned}
 (3) & (3 - \sqrt{5})(3 + \sqrt{5}) \\
 &= 9 - 5 = 4
 \end{aligned}$$

$$\begin{aligned}
 (4) & (4\sqrt{2})^2 - 2 \times 3 \times 4\sqrt{2} + 3^2 \\
 &= 32 - 24\sqrt{2} + 9 \\
 &= 41 - 24\sqrt{2}
 \end{aligned}$$

$$\begin{aligned}
 (5) & (2\sqrt{5})^2 - 2 \times 2\sqrt{5} + 1^2 + 5\sqrt{5} \\
 &= 20 - 4\sqrt{5} + 1 + 5\sqrt{5} \\
 &= 21 + \sqrt{5}
 \end{aligned}$$

$$\begin{aligned}
 (6) & (\sqrt{12})^2 + (1+5)\sqrt{12} + 1 \times 5 \\
 & \quad - \sqrt{3} - 1 \\
 &= 12 + 6 \times 2\sqrt{3} + 5 - \sqrt{3} - 1 \\
 &= 16 + 11\sqrt{3}
 \end{aligned}$$

$$\begin{aligned}
 (7) & (\sqrt{10})^2 - 2 \times \sqrt{10} \sqrt{5} + \sqrt{5}^2 \\
 & \quad - (1-5) \\
 &= 10 - 2\sqrt{50} + 5 - (-4) \\
 &= 19 - 2 \times 5\sqrt{2} \\
 &= 19 - 10\sqrt{2}
 \end{aligned}$$