

平方根の計算ドリル②

解答と解き方

次の計算をなさい。

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

$$= (\sqrt{3})^2 + (-2 + 1)\sqrt{3} + (-2) \times 1$$

$$= 3 - \sqrt{3} - 2$$

$$= 3 - 2 - \sqrt{3}$$

$$= 1 - \sqrt{3}$$

$$1 - \sqrt{3}$$

▶乗法公式を使う。

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

$$= 4^2 - (\sqrt{5})^2$$

$$= 16 - 5$$

$$= 11$$

$$(a + b)^2 = a^2 + 2ab + b^2$$

$$(a - b)^2 = a^2 - 2ab + b^2$$

$$(a + b)(a - b) = a^2 - b^2$$

$$(x + a)(x + b) = x^2 + (a + b)x + ab$$

$$11$$

(3) $(2\sqrt{5} - 1)^2 - (6 - 4\sqrt{5})$

$$= (2\sqrt{5})^2 - 2 \times 2\sqrt{5} \times 1 + 1^2 - 6 + 4\sqrt{5}$$

$$= 20 - 4\sqrt{5} + 1 - 6 + 4\sqrt{5}$$

$$= 20 + 1 - 6 - 4\sqrt{5} + 4\sqrt{5}$$

$$= 15$$

$$15$$

(4) $(\sqrt{8} + 4)(\sqrt{8} - 3) + \frac{8}{\sqrt{2}}$

$$= (\sqrt{8})^2 + (4 - 3)\sqrt{8} + 4 \times (-3) + \frac{8 \times \sqrt{2}}{\sqrt{2} \times \sqrt{2}}$$

$$= 8 + \sqrt{8} - 12 + \frac{4 \times 8 \sqrt{2}}{2}$$

$$= 8 - 12 + 2\sqrt{2} + 4\sqrt{2}$$

$$= -4 + 6\sqrt{2}$$

$$-4 + 6\sqrt{2}$$

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

$$= \sqrt{2} \times 2\sqrt{3} - \sqrt{2} \times \sqrt{2} + (\sqrt{3})^2 - 2 \times \sqrt{3} \times \sqrt{2} + (\sqrt{2})^2$$

$$= 2\sqrt{6} - 2 + 3 - 2\sqrt{6} + 2$$

$$= -2 + 3 + 2 + 2\sqrt{6} - 2\sqrt{6}$$

$$= 3$$

$$3$$