

平方根③ (解答と解説)

1 [解答] (1) $\sqrt{6} < \sqrt{7}$ (2) $\sqrt{26} > 5$ (3) $\sqrt{0.5} > 0.6$ (4) $-\sqrt{5} < -2$

(1) $6 < 7$ であるから $\sqrt{6} < \sqrt{7}$

(2) $5 = \sqrt{25}$ で, $26 > 25$ であるから

$$\sqrt{26} > \sqrt{25} \quad \text{すなわち} \quad \sqrt{26} > 5$$

(3) $0.6 = \sqrt{0.36}$ で, $0.5 > 0.36$ であるから

$$\sqrt{0.5} > \sqrt{0.36} \quad \text{すなわち} \quad \sqrt{0.5} > 0.6$$

(4) $2 = \sqrt{4}$ で, $5 > 4$ であるから $\sqrt{5} > 2$

よって $-\sqrt{5} < -2$

2 [解答] (1) $\sqrt{10}$ (2) $6\sqrt{5}$ (3) $-\sqrt{2}$ (4) $\sqrt{3}$ (5) $4\sqrt{3}$ (6) $2 + \sqrt{14}$

(1) $\sqrt{2} \times \sqrt{5} = \sqrt{2 \times 5}$

$$= \sqrt{10}$$

(2) $\sqrt{6} \times \sqrt{30} = \sqrt{6 \times 30}$

$$= \sqrt{6 \times 5 \times 6}$$

$$= \sqrt{6^2 \times 5}$$

$$= 6\sqrt{5}$$

(3) $\sqrt{50} - \sqrt{72} = 5\sqrt{2} - 6\sqrt{2}$

$$= -\sqrt{2}$$

(4) $\sqrt{24} + \sqrt{54} - \sqrt{6} = 2\sqrt{6} + 3\sqrt{6} - \sqrt{6}$

$$= 4\sqrt{6}$$

(5) $3\sqrt{12} - \frac{15}{\sqrt{3}} + \sqrt{27} = 3 \times 2\sqrt{3} - \frac{15 \times \sqrt{3}}{\sqrt{3} \times \sqrt{3}} + 3\sqrt{3}$

$$= 6\sqrt{3} - \frac{15\sqrt{3}}{3} + 3\sqrt{3}$$

$$= 6\sqrt{3} - 5\sqrt{3} + 3\sqrt{3}$$

$$= 4\sqrt{3}$$

(6) $\sqrt{2}(\sqrt{2} + \sqrt{7}) = \sqrt{2} \times \sqrt{2} + \sqrt{2} \times \sqrt{7}$

$$= 2 + \sqrt{14}$$

3 [解答] (1) 0.2236 (2) 4.242 (3) 0.4472 (4) 8.944 (5) 0.1414

(1) $\frac{1}{\sqrt{20}} = \frac{1 \times \sqrt{20}}{\sqrt{20} \times \sqrt{20}}$

$$= \frac{\sqrt{20}}{20}$$

$$= 4.472 \div 20$$

$$= 0.2236$$

(2) $\sqrt{18} = 3\sqrt{2}$

$$= 3 \times 1.414$$

$$= 4.242$$

(3) $\sqrt{0.2} = \sqrt{\frac{20}{100}}$

$$= \frac{\sqrt{20}}{10}$$

$$= 4.472 \div 10$$

$$= 0.4472$$

(4) $\sqrt{80} = \sqrt{4 \times 20}$

$$= 2\sqrt{20}$$

$$= 2 \times 4.472$$

$$= 8.944$$

(5) $\frac{1}{\sqrt{50}} = \frac{1}{5\sqrt{2}}$

$$= \frac{\sqrt{2}}{5\sqrt{2} \times \sqrt{2}}$$

$$= \frac{\sqrt{2}}{10}$$

$$= 1.414 \div 10$$

$$= 0.1414$$