

平方根の有理化

学習日 月 日

年 組 番 氏名

(1) 次の数を、分母に $\sqrt{\quad}$ を含まない形に変形しなさい。

① $\frac{1}{\sqrt{3}}$

② $\frac{\sqrt{5}}{\sqrt{3}}$

③ $\frac{3}{\sqrt{7}}$

④ $\frac{1}{2\sqrt{5}}$

⑤ $\frac{2\sqrt{2}}{\sqrt{3}}$

⑥ $\frac{6}{\sqrt{3}}$

⑦ $\frac{5}{\sqrt{10}}$

⑧ $\frac{2}{\sqrt{12}}$

⑨ $\frac{\sqrt{5}}{\sqrt{8}}$

⑩ $\frac{2}{\sqrt{20}}$

(2) $\sqrt{2} = 1.414$, $\sqrt{5} = 2.236$ として次の値を求めなさい。

① $\frac{2}{\sqrt{5}}$

② $\frac{1}{\sqrt{8}}$

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(1) 次の数を、分母に $\sqrt{\quad}$ を含まない形に変形しなさい。

$$\begin{aligned} \textcircled{1} \quad & \frac{1}{\sqrt{3}} \\ & \text{分母・分子に}\sqrt{3}\text{をかけると} \\ & = \frac{1}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} \\ & = \frac{\sqrt{3}}{3} \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad & \frac{\sqrt{5}}{\sqrt{3}} \\ & \text{分母・分子に}\sqrt{3}\text{をかけると} \\ & = \frac{\sqrt{5}}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} \\ & = \frac{\sqrt{15}}{3} \end{aligned}$$

$$\begin{aligned} \textcircled{3} \quad & \frac{3}{\sqrt{7}} \\ & \text{分母・分子に}\sqrt{7}\text{をかけると} \\ & = \frac{3}{\sqrt{7}} \times \frac{\sqrt{7}}{\sqrt{7}} \\ & = \frac{3\sqrt{7}}{7} \end{aligned}$$

$$\begin{aligned} \textcircled{4} \quad & \frac{1}{2\sqrt{5}} \\ & \text{分母・分子に}\sqrt{5}\text{をかけると} \\ & = \frac{1}{2\sqrt{5}} \times \frac{\sqrt{5}}{\sqrt{5}} \\ & = \frac{\sqrt{5}}{10} \end{aligned}$$

$$\begin{aligned} \textcircled{5} \quad & \frac{2\sqrt{2}}{\sqrt{3}} \\ & \text{分母・分子に}\sqrt{3}\text{をかけると} \\ & = \frac{2\sqrt{2}}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} \\ & = \frac{2\sqrt{6}}{3} \end{aligned}$$

$$\begin{aligned} \textcircled{6} \quad & \frac{6}{\sqrt{3}} \\ & \text{分母・分子に}\sqrt{3}\text{をかけると} \\ & = \frac{6}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} \\ & = \frac{6\sqrt{3}}{3} \\ & = 2\sqrt{3} \end{aligned}$$

$$\begin{aligned} \textcircled{7} \quad & \frac{5}{\sqrt{10}} \\ & \text{分母・分子に}\sqrt{10}\text{をかけると} \\ & = \frac{5}{\sqrt{10}} \times \frac{\sqrt{10}}{\sqrt{10}} \\ & = \frac{5\sqrt{10}}{10} \\ & = \frac{\sqrt{10}}{2} \end{aligned}$$

$$\begin{aligned} \textcircled{8} \quad & \frac{2}{\sqrt{12}} \\ & \text{分母・分子に}\sqrt{3}\text{をかけると} \\ & = \frac{2}{2\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} \\ & = \frac{\sqrt{3}}{3} \end{aligned}$$

$$\begin{aligned} \textcircled{9} \quad & \frac{\sqrt{5}}{\sqrt{8}} \\ & \text{分母・分子に}\sqrt{2}\text{をかけると} \\ & = \frac{\sqrt{5}}{2\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} \\ & = \frac{\sqrt{10}}{4} \end{aligned}$$

$$\begin{aligned} \textcircled{10} \quad & \frac{2}{\sqrt{20}} \\ & \text{分母・分子に}\sqrt{5}\text{をかけると} \\ & = \frac{2}{2\sqrt{5}} \times \frac{\sqrt{5}}{\sqrt{5}} \\ & = \frac{\sqrt{5}}{5} \end{aligned}$$

(2) $\sqrt{2} = 1.414$, $\sqrt{5} = 2.236$ として次の値を求めなさい。

$$\begin{aligned} \textcircled{1} \quad & \frac{2}{\sqrt{5}} \\ & = \frac{2}{\sqrt{5}} \times \frac{\sqrt{5}}{\sqrt{5}} = \frac{2}{5} \sqrt{5} \\ & = \frac{2}{5} \times 2.236 \\ & = \frac{4}{10} \times 2.236 \\ & = 4 \times 0.2236 \\ & = 0.8944 \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad & \frac{1}{\sqrt{8}} \\ & = \frac{1}{2\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{4} \\ & = \frac{1.414}{4} \\ & = 0.3535 \end{aligned}$$