

反射テスト 平方根 分母の有理化 01

1. 分母を有理化せよ。(S級 20秒, A級 30秒, B級 45秒, C級 1分)

(1) $\frac{1}{\sqrt{2}}$

(2) $-\frac{1}{\sqrt{20}}$

(3) $\frac{2}{\sqrt{5}}$

(4) $\frac{7}{\sqrt{7}}$

(5) $-\left(-\frac{3}{\sqrt{21}}\right)$

(6) $-\frac{35}{\sqrt{5}}$

2. 分母を有理化せよ。(S級 20秒, A級 30秒, B級 45秒, C級 1分)

(1) $\frac{\sqrt{3}}{\sqrt{5}}$

(2) $\sqrt{\frac{3}{2}}$

(3) $-\frac{\sqrt{15}}{\sqrt{6}}$

(4) $-\left(-\frac{\sqrt{8}}{\sqrt{6}}\right)$

3. 分母を有理化せよ。(S級 20秒, A級 30秒, B級 45秒, C級 1分)

(1) $-\frac{1}{\sqrt{3}}$

(2) $\frac{1}{\sqrt{18}}$

(3) $\frac{9}{\sqrt{7}}$

(4) $-\frac{5}{\sqrt{5}}$

(5) $-\left(-\frac{2}{\sqrt{22}}\right)$

(6) $-\frac{10}{\sqrt{5}}$

4. 分母を有理化せよ。(S級 20秒, A級 30秒, B級 45秒, C級 1分)

(1) $\frac{\sqrt{7}}{\sqrt{2}}$

(2) $-\sqrt{\frac{5}{6}}$

(3) $\frac{\sqrt{15}}{\sqrt{35}}$

(4) $-\left(-\frac{\sqrt{18}}{\sqrt{10}}\right)$

反射テスト 平方根 分母の有理化 01 解答解説

1. 分母を有理化せよ。(S級 20秒, A級 30秒, B級 45秒, C級 1分)

★分母の有理化 分母の $\sqrt{\quad}$ (無理数)を計算によって有理数にすること.

例 $\frac{1}{\sqrt{6}} = \frac{1 \times \sqrt{6}}{\sqrt{6} \times \sqrt{6}} = \frac{\sqrt{6}}{6}$

$$\begin{aligned} (1) \quad & \frac{1}{\sqrt{2}} \\ &= \frac{1 \times \sqrt{2}}{\sqrt{2} \times \sqrt{2}} \\ &= \frac{\sqrt{2}}{2} \end{aligned}$$

$$\begin{aligned} (2) \quad & -\frac{1}{\sqrt{20}} \\ &= -\frac{1}{2\sqrt{5}} \quad \leftarrow \sqrt{\quad} \text{の中を簡単に} \\ &= -\frac{1 \times \sqrt{5}}{2\sqrt{5} \times \sqrt{5}} \\ &= -\frac{\sqrt{5}}{2 \times 5} \\ &= -\frac{\sqrt{5}}{10} \end{aligned}$$

$$\begin{aligned} (3) \quad & \frac{2}{\sqrt{5}} \\ &= \frac{2 \times \sqrt{5}}{\sqrt{5} \times \sqrt{5}} \\ &= \frac{2\sqrt{5}}{5} \end{aligned}$$

$$\begin{aligned} (4) \quad & \frac{7}{\sqrt{7}} \\ &= \frac{7 \times \sqrt{7}}{\sqrt{7} \times \sqrt{7}} \\ &= \frac{7\sqrt{7}}{7} \\ &= \sqrt{7} \end{aligned}$$

$$\begin{aligned} (5) \quad & -\left(-\frac{3}{\sqrt{21}}\right) \\ &= +\frac{3 \times \sqrt{21}}{\sqrt{21} \times \sqrt{21}} \\ &= \frac{3\sqrt{21}}{21} \\ &= \frac{\sqrt{21}}{7} \end{aligned}$$

$$\begin{aligned} (6) \quad & -\frac{35}{\sqrt{5}} \\ &= -\frac{35 \times \sqrt{5}}{\sqrt{5} \times \sqrt{5}} \\ &= -\frac{35\sqrt{5}}{5} \\ &= -7\sqrt{5} \end{aligned}$$

2. 分母を有理化せよ。(S級 20秒, A級 30秒, B級 45秒, C級 1分)

$$\begin{aligned} (1) \quad & \frac{\sqrt{3}}{\sqrt{5}} \\ &= \frac{\sqrt{3} \times \sqrt{5}}{\sqrt{5} \times \sqrt{5}} \\ &= \frac{\sqrt{15}}{5} \end{aligned}$$

$$\begin{aligned} (2) \quad & \sqrt{\frac{3}{2}} \\ &= \frac{\sqrt{3} \times \sqrt{2}}{\sqrt{2} \times \sqrt{2}} \\ &= \frac{\sqrt{6}}{2} \end{aligned}$$

$$\begin{aligned} (3) \quad & -\frac{\sqrt{15}}{\sqrt{6}} \\ &= -\frac{\sqrt{5}}{\sqrt{2}} \\ &= -\frac{\sqrt{5} \times \sqrt{2}}{\sqrt{2} \times \sqrt{2}} \\ &= -\frac{\sqrt{10}}{2} \end{aligned}$$

$$\begin{aligned} (4) \quad & -\left(-\frac{\sqrt{8}}{\sqrt{6}}\right) \\ &= +\frac{\sqrt{4}}{\sqrt{3}} \\ &= +\frac{2}{\sqrt{3}} \quad \leftarrow \sqrt{\quad} \text{の中を簡単に} \\ &= \frac{2 \times \sqrt{3}}{\sqrt{3} \times \sqrt{3}} \\ &= \frac{2\sqrt{3}}{3} \end{aligned}$$

3. 分母を有理化せよ。(S級 20秒, A級 30秒, B級 45秒, C級 1分)

$$\begin{aligned}(1) \quad & -\frac{1}{\sqrt{3}} \\ &= -\frac{1 \times \sqrt{3}}{\sqrt{3} \times \sqrt{3}} \\ &= -\frac{\sqrt{3}}{3}\end{aligned}$$

$$\begin{aligned}(2) \quad & \frac{1}{\sqrt{18}} \\ &= \frac{1}{3\sqrt{2}} \quad \leftarrow \sqrt{\quad} \text{の中を簡単に} \\ &= \frac{1 \times \sqrt{2}}{3\sqrt{2} \times \sqrt{2}} \\ &= \frac{\sqrt{2}}{3 \times 2} \\ &= \frac{\sqrt{2}}{6}\end{aligned}$$

$$\begin{aligned}(3) \quad & \frac{9}{\sqrt{7}} \\ &= \frac{9 \times \sqrt{7}}{\sqrt{7} \times \sqrt{7}} \\ &= \frac{9\sqrt{7}}{7}\end{aligned}$$

$$\begin{aligned}(4) \quad & -\frac{5}{\sqrt{5}} \\ &= -\frac{5 \times \sqrt{5}}{\sqrt{5} \times \sqrt{5}} \\ &= -\frac{5\sqrt{5}}{5} \\ &= -\sqrt{5}\end{aligned}$$

$$\begin{aligned}(5) \quad & -\left(-\frac{2}{\sqrt{22}}\right) \\ &= +\frac{2 \times \sqrt{22}}{\sqrt{22} \times \sqrt{22}} \\ &= \frac{2\sqrt{22}}{22} \\ &= \frac{\sqrt{22}}{11}\end{aligned}$$

$$\begin{aligned}(6) \quad & -\frac{10}{\sqrt{5}} \\ &= -\frac{10 \times \sqrt{5}}{\sqrt{5} \times \sqrt{5}} \\ &= -\frac{10\sqrt{5}}{5} \\ &= -2\sqrt{5}\end{aligned}$$

4. 分母を有理化せよ。(S級 20秒, A級 30秒, B級 45秒, C級 1分)

$$\begin{aligned}(1) \quad & \frac{\sqrt{7}}{\sqrt{2}} \\ &= \frac{\sqrt{7} \times \sqrt{2}}{\sqrt{2} \times \sqrt{2}} \\ &= \frac{\sqrt{14}}{2}\end{aligned}$$

$$\begin{aligned}(2) \quad & -\sqrt{\frac{5}{6}} \\ &= -\frac{\sqrt{5} \times \sqrt{6}}{\sqrt{6} \times \sqrt{6}} \\ &= -\frac{\sqrt{30}}{6}\end{aligned}$$

$$\begin{aligned}(3) \quad & \frac{\sqrt{15}}{\sqrt{35}} \\ &= \frac{\sqrt{3}}{\sqrt{7}} \\ &= \frac{\sqrt{3} \times \sqrt{7}}{\sqrt{7} \times \sqrt{7}} \\ &= \frac{\sqrt{21}}{7}\end{aligned}$$

$$\begin{aligned}(4) \quad & -\left(-\frac{\sqrt{18}}{\sqrt{10}}\right) \\ &= +\frac{\sqrt{9}}{\sqrt{5}} \\ &= +\frac{3}{\sqrt{5}} \quad \leftarrow \sqrt{\quad} \text{の中を簡単に} \\ &= \frac{3 \times \sqrt{5}}{\sqrt{5} \times \sqrt{5}} \\ &= \frac{3\sqrt{5}}{5}\end{aligned}$$