

平方根 [根号をふくむ式の乗法]

<演習問題>

次の計算をせよ。

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

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

(3) $-\sqrt{5} \times (-\sqrt{7})$

(4) $3\sqrt{2} \times 2\sqrt{7}$

(5) $\sqrt{5} \times \sqrt{15}$

(6) $-\sqrt{6} \times \sqrt{2}$

(7) $\sqrt{12} \times \sqrt{15}$

(8) $-\sqrt{8} \times \sqrt{2}$

(9) $(3\sqrt{5})^2$

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

(11) $(-2\sqrt{2})^2$

(12) $(2\sqrt{3})^3$

(13) $\frac{\sqrt{3}}{2} \times \frac{\sqrt{12}}{3}$

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次の計算をせよ。

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

$$\begin{aligned}\sqrt{2} \times \sqrt{5} &= \sqrt{2 \times 5} \\ &= \sqrt{10}\end{aligned}$$

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

$$\begin{aligned}-\sqrt{3} \times \sqrt{5} &= -\sqrt{3 \times 5} \\ &= -\sqrt{15}\end{aligned}$$

(3) $-\sqrt{5} \times (-\sqrt{7})$

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

(4) $3\sqrt{2} \times 2\sqrt{7}$

$$\begin{aligned}3\sqrt{2} \times 2\sqrt{7} &= 3 \times 2 \times \sqrt{2 \times 7} \\ &= 6\sqrt{14}\end{aligned}$$

(5) $\sqrt{5} \times \sqrt{15}$

$$\begin{aligned}\sqrt{5} \times \sqrt{15} &= \sqrt{5 \times 15} \\ &= \sqrt{5^2 \times 3} \\ &= 5\sqrt{3}\end{aligned}$$

(6) $-\sqrt{6} \times \sqrt{2}$

$$\begin{aligned}-\sqrt{6} \times \sqrt{2} &= -\sqrt{6 \times 2} \\ &= -\sqrt{2^2 \times 3} \\ &= -2\sqrt{3}\end{aligned}$$

(7) $\sqrt{12} \times \sqrt{15}$

$$\begin{aligned}\sqrt{12} \times \sqrt{15} &= \sqrt{12 \times 15} \\ &= \sqrt{2^2 \times 3^2 \times 5} \\ &= 2 \times 3 \times \sqrt{5} \\ &= 6\sqrt{5}\end{aligned}$$

(8) $-\sqrt{8} \times \sqrt{2}$

$$\begin{aligned}-\sqrt{8} \times \sqrt{2} &= -\sqrt{8 \times 2} \\ &= -\sqrt{2^4} \\ &= -2^2 \\ &= -4\end{aligned}$$

(9) $(3\sqrt{5})^2$

$$\begin{aligned}(3\sqrt{5})^2 &= (3\sqrt{5}) \times (3\sqrt{5}) \\ &= 3 \times 3 \times \sqrt{5 \times 5} \\ &= 9 \times \sqrt{5^2} \\ &= 9 \times 5 \\ &= 45\end{aligned}$$

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

$$\begin{aligned}(-\sqrt{3})^2 &= (-\sqrt{3}) \times (-\sqrt{3}) \\ &= \sqrt{3 \times 3} \\ &= \sqrt{3^2} \\ &= 3\end{aligned}$$

(11) $(-2\sqrt{2})^2$

$$\begin{aligned}(-2\sqrt{2})^2 &= (-2\sqrt{2}) \times (-2\sqrt{2}) \\ &= 2 \times 2 \times \sqrt{2 \times 2} \\ &= 4 \times \sqrt{2^2} \\ &= 4 \times 2 \\ &= 8\end{aligned}$$

(12) $(2\sqrt{3})^3$

$$\begin{aligned}(2\sqrt{3})^3 &= (2\sqrt{3}) \times (2\sqrt{3}) \times (2\sqrt{3}) \\ &= 2 \times 2 \times 2 \times \sqrt{3 \times 3 \times 3} \\ &= 8 \times \sqrt{3^2 \times 3} \\ &= 8 \times 3 \times \sqrt{3} \\ &= 24\sqrt{3}\end{aligned}$$

(13) $\frac{\sqrt{3}}{2} \times \frac{\sqrt{12}}{3}$

$$\begin{aligned}\frac{\sqrt{3}}{2} \times \frac{\sqrt{12}}{3} &= \frac{\sqrt{3 \times 12}}{2 \times 3} \\ &= \frac{\sqrt{2^2 \times 3^2}}{6} \\ &= \frac{6}{6} \\ &= 1\end{aligned}$$