

平方根の四則混合計算

例題 次の計算をせよ。

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

(2) $\sqrt{3}(\sqrt{12}-\sqrt{8})+2(\sqrt{6}-1)$

答

答

練習 次の計算をせよ

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

(3) $\sqrt{3}(2-\sqrt{15})$

答

答

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

(4) $\sqrt{5}(2-\sqrt{5})-\sqrt{45}$

答

答

平方根の四則混合計算(2)*

例題 次の計算をせよ。

(1) $(\sqrt{60} - \sqrt{48}) \div 2\sqrt{3}$

(2) $\sqrt{18} + \sqrt{10} \div 2\sqrt{5}$

答

答

練習 次の計算をせよ。

(1) $(\sqrt{18} - \sqrt{12}) \div \sqrt{6}$

(3) $(3\sqrt{18} - \sqrt{10}) \div \sqrt{2}$

答

答

(2) $(\sqrt{15} + \sqrt{12}) \div \sqrt{3}$

(4) $\sqrt{2} - \sqrt{18} \div 3$

答

答

平方根の四則混合計算

例題 次の計算をせよ。

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

★

$$\begin{aligned}\sqrt{2}(\sqrt{6}-\sqrt{2}) &= \sqrt{2} \times \sqrt{6} - \sqrt{2} \times \sqrt{2} \\ &= \sqrt{12} - 2 \\ &= 2\sqrt{3} - 2\end{aligned}$$

答 $2\sqrt{3} - 2$

(2) $\sqrt{3}(\sqrt{12}-\sqrt{8})+2(\sqrt{6}-1)$

★

$$\begin{aligned}\sqrt{3}(\sqrt{12}-\sqrt{8})+2(\sqrt{6}-1) &= \sqrt{3} \times \sqrt{12} - \sqrt{3} \times \sqrt{8} + 2 \times \sqrt{6} + 2 \times (-1) \\ &= \sqrt{36} - \sqrt{24} + 2\sqrt{6} - 2 \\ &= 6 - 2\sqrt{6} + 2\sqrt{6} - 2 \\ &= 4\end{aligned}$$

答 4

練習 次の計算をせよ

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

★

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

答 $\sqrt{15} + 3$

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

★

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

答 $-6 + \sqrt{6}$

(3) $\sqrt{3}(2-\sqrt{15})$

★

$$\begin{aligned}\sqrt{3}(2-\sqrt{15}) &= \sqrt{3} \times 2 - \sqrt{3} \times \sqrt{15} \\ &= 2\sqrt{3} - 4\sqrt{5} \\ &= 2\sqrt{3} - 3\sqrt{5}\end{aligned}$$

答 $2\sqrt{3} - 3\sqrt{5}$

(4) $\sqrt{5}(2-\sqrt{5})-\sqrt{45}$

★

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

答 $-\sqrt{5} - 5$

平方根の四則混合計算(2)*

例題 次の計算をせよ。

(1) $(\sqrt{60} - \sqrt{48}) \div 2\sqrt{3}$

★

$$\begin{aligned} (\sqrt{60} - \sqrt{48}) \div 2\sqrt{3} &= (\sqrt{60} - \sqrt{48}) \times \frac{1}{2\sqrt{3}} \\ &= \frac{\sqrt{60^2}}{2\sqrt{3_1}} - \frac{\sqrt{48^2}}{2\sqrt{3_1}} \\ &= \frac{\sqrt{20}}{2} - \frac{4}{2} \\ &= \frac{2\sqrt{5}}{2} - 2 \\ &= \sqrt{5} - 2 \end{aligned}$$

答 $\sqrt{5} - 2$

(2) $\sqrt{18} + \sqrt{10} \div 2\sqrt{5}$

★

$$\begin{aligned} \sqrt{18} + \sqrt{10} \div 2\sqrt{5} &= \sqrt{18} + \sqrt{10} \times \frac{1}{2\sqrt{5}} \\ &= 3\sqrt{2} + \frac{\sqrt{10^2}}{2\sqrt{5_1}} \\ &= 3\sqrt{2} + \frac{\sqrt{2}}{2} \\ &= \frac{6\sqrt{2}}{2} + \frac{\sqrt{2}}{2} \\ &= \frac{7\sqrt{2}}{2} \end{aligned}$$

答 $\frac{7\sqrt{2}}{2}$

練習 次の計算をせよ。

(1) $(\sqrt{18} - \sqrt{12}) \div \sqrt{6}$

★

$$\begin{aligned} (\sqrt{18} - \sqrt{12}) \div \sqrt{6} &= (\sqrt{18} - \sqrt{12}) \times \frac{1}{\sqrt{6}} \\ &= \frac{\sqrt{18^2}}{\sqrt{6_1}} - \frac{\sqrt{12^2}}{\sqrt{6_1}} \\ &= \sqrt{3} - \sqrt{2} \end{aligned}$$

答 $\sqrt{3} - \sqrt{2}$

(2) $(\sqrt{15} + \sqrt{12}) \div \sqrt{3}$

★

$$\begin{aligned} (\sqrt{15} + \sqrt{12}) \div \sqrt{3} &= (\sqrt{15} + \sqrt{12}) \times \frac{1}{\sqrt{3}} \\ &= \frac{\sqrt{15^2}}{\sqrt{3_1}} + \frac{\sqrt{12^2}}{\sqrt{3_1}} \\ &= \sqrt{5} + \sqrt{4} \\ &= \sqrt{5} + 2 \end{aligned}$$

答 $\sqrt{5} + 2$

(3) $(3\sqrt{18} - \sqrt{10}) \div \sqrt{2}$

★

$$\begin{aligned} (3\sqrt{18} - \sqrt{10}) \div \sqrt{2} &= (3\sqrt{18} - \sqrt{10}) \times \frac{1}{\sqrt{2}} \\ &= \frac{3\sqrt{18^2}}{\sqrt{2_1}} - \frac{\sqrt{10^2}}{\sqrt{2_1}} \\ &= 3 \times \sqrt{9} - \sqrt{5} \\ &= 3 \times 3 - \sqrt{5} \\ &= 9 - \sqrt{5} \end{aligned}$$

答 $9 - \sqrt{5}$

(4) $\sqrt{2} - \sqrt{18} \div 3$

★

$$\begin{aligned} \sqrt{2} - \sqrt{18} \div 3 &= \sqrt{2} - 3\sqrt{2} \times \frac{1}{3} \\ &= \sqrt{2} - \frac{3\sqrt{2}}{3} \\ &= \sqrt{2} - \sqrt{2} \\ &= 0 \end{aligned}$$

答 0