

根号を含む式の展開

____年 ____組 名前

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■ 次の式を計算しなさい。

① $(4\sqrt{3} + 1)(4\sqrt{3} + 6)$

⑦ $(\sqrt{6} + 3\sqrt{2})^2$

⑬ $(2\sqrt{3} - \sqrt{7})(2\sqrt{3} + \sqrt{7})$

② $(\sqrt{15} - 1)(\sqrt{15} + 3)$

⑧ $(\sqrt{2} - \sqrt{5})^2$

⑭ $(2\sqrt{3} + 7)^2$

③ $(2\sqrt{5} + 2)(2\sqrt{5} - 5)$

⑨ $(4 + 3\sqrt{3})^2$

⑮ $(2\sqrt{7} + 1)(2\sqrt{7} + 2)$

④ $(\sqrt{3} + 1)(\sqrt{3} - 4)$

⑩ $(\sqrt{7} - 1)(\sqrt{7} - 5)$

⑯ $(\sqrt{13} - 2)(\sqrt{13} + 4)$

⑤ $(3 - 2\sqrt{2})(3 + 2\sqrt{2})$

⑪ $(\sqrt{10} + \sqrt{3})(\sqrt{10} - \sqrt{3})$

⑰ $(5 + \sqrt{10})(5 - \sqrt{10})$

⑥ $(\sqrt{2} + 8)(\sqrt{2} - 8)$

⑫ $(\sqrt{5} - 1)(\sqrt{5} + 1)$

⑱ $(2 - \sqrt{6})^2$

■ 次の式を計算しなさい。

$$\begin{aligned} \textcircled{1} & (4\sqrt{3} + 1)(4\sqrt{3} + 6) \\ &= 48 + 24\sqrt{3} + 4\sqrt{3} + 6 \\ &= 54 + 28\sqrt{3} \end{aligned}$$

$$\begin{aligned} \textcircled{2} & (\sqrt{15} - 1)(\sqrt{15} + 3) \\ &= 15 + 3\sqrt{15} - \sqrt{15} - 3 \\ &= 12 + 2\sqrt{15} \end{aligned}$$

$$\begin{aligned} \textcircled{3} & (2\sqrt{5} + 2)(2\sqrt{5} - 5) \\ &= 20 - 10\sqrt{5} + 4\sqrt{5} - 10 \\ &= 10 - 6\sqrt{5} \end{aligned}$$

$$\begin{aligned} \textcircled{4} & (\sqrt{3} + 1)(\sqrt{3} - 4) \\ &= 3 - 4\sqrt{3} + \sqrt{3} - 4 \\ &= -1 - 3\sqrt{3} \end{aligned}$$

$$\begin{aligned} \textcircled{5} & (3 - 2\sqrt{2})(3 + 2\sqrt{2}) \\ &= 9 - 8 \\ &= 1 \end{aligned}$$

$$\begin{aligned} \textcircled{6} & (\sqrt{2} + 8)(\sqrt{2} - 8) \\ &= 2 - 64 \\ &= -62 \end{aligned}$$

$$\begin{aligned} \textcircled{7} & (\sqrt{6} + 3\sqrt{2})^2 \\ &= 6 + 12\sqrt{3} + 18 \\ &= 24 + 12\sqrt{3} \end{aligned}$$

$$\begin{aligned} \textcircled{8} & (\sqrt{2} - \sqrt{5})^2 \\ &= 2 - 2\sqrt{10} + 5 \\ &= 7 - 2\sqrt{10} \end{aligned}$$

$$\begin{aligned} \textcircled{9} & (4 + 3\sqrt{3})^2 \\ &= 16 + 24\sqrt{3} + 27 \\ &= 43 + 24\sqrt{3} \end{aligned}$$

$$\begin{aligned} \textcircled{10} & (\sqrt{7} - 1)(\sqrt{7} - 5) \\ &= 7 - 5\sqrt{7} - \sqrt{7} + 5 \\ &= 12 - 6\sqrt{7} \end{aligned}$$

$$\begin{aligned} \textcircled{11} & (\sqrt{10} + \sqrt{3})(\sqrt{10} - \sqrt{3}) \\ &= 10 - 3 \\ &= 7 \end{aligned}$$

$$\begin{aligned} \textcircled{12} & (\sqrt{5} - 1)(\sqrt{5} + 1) \\ &= 5 - 1 \\ &= 4 \end{aligned}$$

$$\begin{aligned} \textcircled{13} & (2\sqrt{3} - \sqrt{7})(2\sqrt{3} + \sqrt{7}) \\ &= 12 - 7 \\ &= 5 \end{aligned}$$

$$\begin{aligned} \textcircled{14} & (2\sqrt{3} + 7)^2 \\ &= 12 + 28\sqrt{3} + 49 \\ &= 61 + 28\sqrt{3} \end{aligned}$$

$$\begin{aligned} \textcircled{15} & (2\sqrt{7} + 1)(2\sqrt{7} + 2) \\ &= 28 + 4\sqrt{7} + 2\sqrt{7} + 2 \\ &= 30 + 6\sqrt{7} \end{aligned}$$

$$\begin{aligned} \textcircled{16} & (\sqrt{13} - 2)(\sqrt{13} + 4) \\ &= 13 + 4\sqrt{13} - 2\sqrt{13} - 8 \\ &= 5 + 2\sqrt{13} \end{aligned}$$

$$\begin{aligned} \textcircled{17} & (5 + \sqrt{10})(5 - \sqrt{10}) \\ &= 25 - 10 \\ &= 15 \end{aligned}$$

$$\begin{aligned} \textcircled{18} & (2 - \sqrt{6})^2 \\ &= 4 - 4\sqrt{6} + 6 \\ &= 10 - 4\sqrt{6} \end{aligned}$$