

$$\textcircled{2} (\sqrt{7} + \sqrt{5})(\sqrt{7} - \sqrt{5}) = (\sqrt{7})^2 - (\sqrt{5})^2 \leftarrow \boxed{(a+b)(a-b) = a^2 - b^2} \text{ を利用する}$$

$$= 7 - 5$$

$$= \underline{2}$$

問 6. 次の式を簡単にせよ。

$$\textcircled{1} (\sqrt{3} + \sqrt{5})^2$$

$$= (\quad)^2 + 2\sqrt{\quad \times \quad} + (\quad)^2$$

$$= \quad + 2\sqrt{\quad} + \quad$$

$$= \quad$$

$$\textcircled{2} (5 - \sqrt{2})^2$$

$$\textcircled{3} (\sqrt{5} + \sqrt{2})(\sqrt{5} - \sqrt{2})$$

$$= (\quad)^2 - (\quad)^2$$

$$= \quad - \quad$$

$$= \quad$$

例 7.

$$(5 + 3\sqrt{2})(1 - 2\sqrt{2})$$

$$= 5 \times 1 + 5 \times (-2\sqrt{2}) + 3\sqrt{2} \times 1 + 3\sqrt{2} \times (-2\sqrt{2})$$

$$= 5 - 10\sqrt{2} + 3\sqrt{2} - 6 \times 2$$

$$= 5 - 7\sqrt{2} - 12$$

$$= \underline{-7 - 7\sqrt{2}}$$

$\sqrt{2} = a$ とおくと
 $(5 + 3a)(1 - 2a)$ の展開と同じ計算

問 7. 次の計算をせよ。

$$\textcircled{1} \sqrt{2}(\sqrt{2} + \sqrt{6})$$

$$\textcircled{2} (\sqrt{3} + \sqrt{5})(2\sqrt{3} - \sqrt{5}) =$$

=

例 8.

$$\frac{\sqrt{5}}{2\sqrt{3}} = \frac{\sqrt{5} \boxed{\times \sqrt{3}}}{2\sqrt{3} \boxed{\times \sqrt{3}}} = \frac{\sqrt{5 \times 3}}{2 \times (\sqrt{3})^2} = \frac{\sqrt{15}}{2 \times 3} = \frac{\sqrt{15}}{6}$$

↑ 同じ

$(\sqrt{a})^2 = a \quad (a > 0)$

問 8. 次の数の分母を有理化せよ。

$$\textcircled{1} \frac{\sqrt{5}}{\sqrt{2}} = \frac{\sqrt{5} \times \quad}{\sqrt{2} \times \quad} = \frac{\sqrt{5 \times \quad}}{\quad} = \quad$$

$$\textcircled{2} \frac{1}{\sqrt{10}} =$$

例 9.

$$\frac{\sqrt{5} - \sqrt{3}}{\sqrt{5} + \sqrt{3}} = \frac{(\sqrt{5} - \sqrt{3}) \boxed{(\sqrt{5} - \sqrt{3})}}{(\sqrt{5} + \sqrt{3}) \boxed{(\sqrt{5} - \sqrt{3})}} = \frac{5 - 2\sqrt{15} + 3}{(\sqrt{5})^2 - (\sqrt{3})^2} = \frac{8 - 2\sqrt{15}}{5 - 3} = \frac{8 - 2\sqrt{15}}{2} = 4 - \sqrt{15}$$

↑ 土を変える

↑ $(a+b)(a-b) = a^2 - b^2$ を利用する

問 9. 次の数の分母を有理化せよ。

$$\textcircled{1} \frac{\sqrt{7} + \sqrt{3}}{\sqrt{7} - \sqrt{3}} = \frac{(\sqrt{7} + \sqrt{3})(\quad)}{(\sqrt{7} - \sqrt{3})(\quad)} = \frac{(\quad)^2 - (\quad)^2}{\quad} = \quad$$

$$\textcircled{2} \frac{1}{\sqrt{3} + \sqrt{2}} =$$