

演習問題 5

問題 1 次の式を簡単にせよ。

$$(1) \sqrt{75}\sqrt{5} = 5\sqrt{15}$$

$$(2) \sqrt{15}\sqrt{27} = 9\sqrt{5}$$

$$(3) \sqrt{2}(\sqrt{24} - \sqrt{5}) = 4\sqrt{3} - \sqrt{10}$$

$$(4) (\sqrt{27} - 2\sqrt{12}) \times (-2\sqrt{3}) = -18 + 24 = 6$$

$$(5) \sqrt{6}(\sqrt{2} + 1) - 2\sqrt{3} = \sqrt{6}$$

$$(6) \sqrt{3}(\sqrt{3} - \sqrt{24}) + 6\sqrt{2} = 3$$

問題 2 次の各式の分母を有理化せよ。

$$(1) \sqrt{\frac{3}{5}} = \frac{\sqrt{15}}{5}$$

$$(2) \frac{\sqrt{5}}{\sqrt{15}} = \frac{\sqrt{3}}{3}$$

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

$$(4) \frac{\sqrt{7} - \sqrt{2}}{\sqrt{7} + \sqrt{2}} = \frac{9 - 2\sqrt{14}}{5}$$

問題 3 次の各式を簡単にせよ。

$$(1) 6\sqrt{2} - \frac{1}{\sqrt{2}} = \frac{11}{\sqrt{2}} = \frac{11\sqrt{2}}{2}$$

$$(2) \frac{\sqrt{3}}{\sqrt{6}} - \frac{10}{\sqrt{2}} + 7\sqrt{8} = -\frac{9}{\sqrt{2}} + 14\sqrt{2} = \frac{19\sqrt{2}}{2}$$

$$(3) \frac{1}{\sqrt{7} - \sqrt{5}} - \frac{1}{\sqrt{5} - \sqrt{3}} - \frac{2}{\sqrt{7} + \sqrt{3}} = \frac{\sqrt{7} - \sqrt{3}}{2} - \frac{\sqrt{7} - \sqrt{3}}{2} = 0$$