

## 平方根のいろいろな計算(3)

【1】次の計算をなさい。

$$(1) \sqrt{3}(2+\sqrt{7}) = \sqrt{3} \times 2 + \sqrt{3} \times \sqrt{7} \\ = 2\sqrt{3} + \sqrt{21}$$

$$(2) \sqrt{5}(\sqrt{2}-\sqrt{15}) = \sqrt{5} \times \sqrt{2} - \sqrt{5} \times \sqrt{15} \\ = \sqrt{10} - \sqrt{5} \times \sqrt{5} \times \sqrt{3} \\ = \sqrt{10} - 5\sqrt{3}$$

$$(3) 8\sqrt{3} - \sqrt{21} \times \sqrt{7} = 8\sqrt{3} - \sqrt{3} \times \sqrt{7} \times \sqrt{7} \\ = 8\sqrt{3} - 7\sqrt{3} \\ = \sqrt{3}$$

$$(4) \sqrt{30} \times \sqrt{6} - \frac{6}{\sqrt{3}} = \sqrt{5} \times \sqrt{6} \times \sqrt{6} - \frac{6\sqrt{3}}{3} \\ = 6\sqrt{5} - 2\sqrt{3}$$

$$(5) (\sqrt{2}+7)(\sqrt{2}+3) \\ = (\sqrt{2})^2 + (7+3)\sqrt{2} + 7 \times 3 \\ = 2 + 10\sqrt{2} + 21 \\ = 23 + 10\sqrt{2}$$

$$(6) (\sqrt{3}+\sqrt{5})^2 \\ = (\sqrt{3})^2 + 2 \times \sqrt{5} \times \sqrt{3} + (\sqrt{5})^2 \\ = 3 + 2\sqrt{15} + 5 \\ = 8 + 2\sqrt{15}$$

$$(7) (\sqrt{8}-2\sqrt{5})^2 \\ = (\sqrt{8})^2 - 2 \times 2\sqrt{2} \times 2\sqrt{5} + (2\sqrt{5})^2 \\ = 8 - 8\sqrt{10} + 20 \\ = 28 - 8\sqrt{10}$$

$$(8) (5-\sqrt{7})(5+\sqrt{7}) \\ = 5^2 - (\sqrt{7})^2 \\ = 18$$

【2】  $x = \sqrt{2} + 3$  ,  $y = \sqrt{2} - 3$  のとき、次の計算をなさい。

$$(1) (x-y)^2 = \{(\sqrt{2}+3) - (\sqrt{2}-3)\}^2 \\ = 6^2 = 36$$

$$(2) x^2 - y^2 = (x+y)(x-y) \\ x+y = 2\sqrt{2} , x-y = 6 \text{ を代入して,} \\ x^2 - y^2 = 2\sqrt{2} \times 6 = 12\sqrt{2}$$

