

問題番号 09M0208_02 レベル ☆☆☆	うんな進学塾 中3 第2章 平方根 ⑧平方根の計算（複合） No.2 解答	授業動画QR 
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1. 次の計算をなさい

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

$$= 5\sqrt{2} - 2 \times 2 = 5\sqrt{2} - 4$$

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

$$= \sqrt{18} + \sqrt{36} = 3\sqrt{2} + 6$$

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

$$= \sqrt{12} - 6 + 4 - 2\sqrt{12} = -\sqrt{12} - 2 = -2\sqrt{3} - 2$$

$$(4) (\sqrt{5} + 2)(\sqrt{5} - 3)$$

$$= 5 - \sqrt{5} - 6 = -1 - \sqrt{5}$$

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

$$= 3 + 2\sqrt{15} + 5 = 8 + 2\sqrt{15}$$

$$(6) (4 + \sqrt{6})(4 - \sqrt{6})$$

$$= 16 - 6 = 10$$

$$(7) \sqrt{18} + \frac{1}{\sqrt{2} + 1}$$

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

$$= 4\sqrt{2} - 1$$

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

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

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

(1) $5\sqrt{2} - 4$	(2) $6 + 3\sqrt{2}$	(3) $-2\sqrt{3} - 2$	(4) $-1 - \sqrt{5}$
(5) $8 + 2\sqrt{15}$	(6) 10	(7) $4\sqrt{2} - 1$	(8) $2 - \frac{\sqrt{3}}{3}$

2. $x = \sqrt{2} + 1$, $y = \sqrt{2} - 1$ のとき、次の式の値を求めなさい。

$$(1) x^2 + 4x + 4$$

$$= (x+2)^2 = (\sqrt{2}+3)^2 = 2 + 6\sqrt{2} + 9$$

$$= 11 + 6\sqrt{2}$$

$$(2) y^2 - 3y - 4 = (y-4)(y+1)$$

$$= (\sqrt{2}-1-4)(\sqrt{2}-1+1)$$

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

(1) $11 + 6\sqrt{2}$	(2) $2 - 5\sqrt{2}$
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