

問題番号 09M0208_01 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.1 解答	授業動画QR 
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1. 次の計算をなさい

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

$$= 2\sqrt{3} - 3\sqrt{3} \times \sqrt{3} = 2\sqrt{3} - 9$$

$$(2) \sqrt{2}(\sqrt{8} + \sqrt{12})$$

$$= \sqrt{16} + \sqrt{24} = 4 + 2\sqrt{6}$$

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

$$= \sqrt{15} - 2\sqrt{25} + 3\sqrt{9} - 6\sqrt{15} = -5\sqrt{15} - 1$$

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

$$= 3 - \sqrt{3} - 20 = -\sqrt{3} - 17$$

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

$$= 2 + 2\sqrt{6} + 3 = 5 + 2\sqrt{6}$$

$$(6) (6 - \sqrt{7})(6 + \sqrt{7})$$

$$= 36 - 7 = 29$$

$$(7) \sqrt{12} + \frac{1}{\sqrt{3}+1}$$

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

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

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

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

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

(1) $2\sqrt{3}-9$	(2) $4+2\sqrt{6}$	(3) $-5\sqrt{15}-1$	(4) $-\sqrt{3}-17$
(5) $5+2\sqrt{6}$	(6) 29	(7) $\frac{5\sqrt{3}-1}{2}$	(8) $3-\sqrt{2}$

2. $x = \sqrt{3}+1$, $y = \sqrt{3}-1$ のとき、次の式の値を求めなさい。

$$(1) x^2 + 2xy + y^2$$

$$= (x+y)^2 = (\sqrt{3}+1 + \sqrt{3}-1)^2 = (2\sqrt{3})^2 = 12$$

$$(2) x^2 - y^2 = (x+y)(x-y)$$

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

$$= 2\sqrt{3} \times 2 = 4\sqrt{3}$$

(1) 12	(2) $4\sqrt{3}$
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