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・累乗根の性質

a>0, b>0, m, n, p が正の整数のとき

1. $\sqrt[n]{a}\sqrt[n]{b} = \sqrt[n]{ab}$　　2. $\dfrac{\sqrt[n]{a}}{\sqrt[n]{b}} = \sqrt[n]{\dfrac{a}{b}}$

3. $(\sqrt[n]{a})^m = \sqrt[n]{a^m}$　　4. $\sqrt[m]{\sqrt[n]{a}} = \sqrt[mn]{a}$

5. $\sqrt[np]{a^{mp}} = \sqrt[n]{a^m}$

(例)

(1) $\sqrt[3]{6}\sqrt[3]{18} = \sqrt[3]{108} = \sqrt[3]{2^2\cdot 3^3} = 3\sqrt[3]{4}$ //

(2) $\sqrt[3]{250} \div \sqrt[3]{2} = \sqrt[3]{125} = 5$ //

(3) $(\sqrt[3]{2})^4 = \sqrt[3]{2^4} = \sqrt[3]{2\cdot 2^3} = 2\sqrt[3]{2}$ //

(4) $\sqrt{\sqrt[3]{128}} = \sqrt[2\times 3]{128} = \sqrt[6]{2^7} = \sqrt[6]{2\cdot 2^6} = 2\sqrt[6]{2}$ //

(5) $\sqrt[6]{8} = \sqrt[6]{2^3} = \sqrt[2\times \cancel{3}]{2^{1\times \cancel{3}}} = \sqrt[2]{2} = \sqrt{2}$ //