

91. 指数の拡張①

(1) 6	(2) -2	(3) $\sqrt{3}$	(4) $\frac{1}{64}$
(5) 16	(6) $\frac{1}{125}$	(7) 2	(8) 1

次の式を計算せよ。

$$(1) \sqrt[3]{216} = \sqrt[3]{6^3} = 6$$

$$(2) \sqrt[5]{-32} = \sqrt[5]{(-2)^5} = -2$$

$$(3) \sqrt[8]{81} = \sqrt[8]{3^4} = \sqrt{3}$$

$$(4) 4^{-3} = \frac{1}{4^3} = \frac{1}{64}$$

$$(5) 8^{\frac{4}{3}} = (2^3)^{\frac{4}{3}} = 2^4 = 16$$

$$(6) 0.04^{1.5} = \left(\frac{4}{100}\right)^{\frac{3}{2}} = \left\{\left(\frac{2}{10}\right)^2\right\}^{\frac{3}{2}} = \left(\frac{1}{5}\right)^3 = \frac{1}{125}$$

$$(7) \frac{\sqrt[4]{64}}{\sqrt[4]{4}} = \sqrt[4]{2^4} = 2$$

$$(8) \frac{\sqrt[3]{32}\sqrt[3]{\sqrt[6]{512}}}{\sqrt[12]{1024}\sqrt[6]{256}} = \frac{\sqrt[3]{2^5}\sqrt[3]{2^9}}{\sqrt[12]{2^{10}}\sqrt[6]{2^8}} = \frac{2^{\frac{5}{3}} \times 2^{\frac{1}{2}}}{2^{\frac{5}{6}} \times 2^{\frac{4}{3}}} = \frac{2^{\frac{13}{6}}}{2^{\frac{13}{6}}} = 1$$