

次の計算をせよ。

(1) $16^{\frac{3}{4}}$

(2) $\sqrt[4]{4}$

(3) $\sqrt[4]{3}\sqrt[4]{27}$

(4) $2^{\frac{5}{6}} \div 2^{\frac{1}{3}} \times 2^{\frac{5}{2}}$

(5) $\sqrt{7} \times \sqrt[3]{7} \times \sqrt[6]{7}$

(6) $\log_{\sqrt{3}} \frac{1}{27}$

(7) $\log_{10} 4 + \log_{10} 200 - 3 \log_{10} 2$

(8) $\log_8 32$

(9) $\log_3 8 \cdot \log_4 3$

d) $16 = 2^4$

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

e) $4^{\frac{1}{4}} = (2^2)^{\frac{1}{4}} = 2^{\frac{1}{2}} = \sqrt{2}$

b) $3^{\frac{1}{4}} \cdot (3^3)^{\frac{1}{4}} = 3^{\frac{1}{4}} 3^{\frac{3}{4}} = 3$

f) $2^{\frac{5}{6} - \frac{1}{3} + \frac{5}{2}} = 2^3 = 8$

$27 = 3^3 = (\sqrt{3})^2 \cdot 3 = (\sqrt{3})^6$

(5) $7^{\frac{1}{2}} \times 7^{\frac{1}{3}} \times 7^{\frac{1}{6}} = 7^{\frac{1}{2} + \frac{1}{3} + \frac{1}{6}} = 7$

(6) $\log_{\sqrt{3}} (\sqrt{3})^{-6} = -6$

(7) $\log_{10} (4 \times 200 \div 2^3) = \log_{10} 100 = 2$

(8) $\frac{\log_2 32}{\log_2 8} = \frac{\log_2 2^5}{\log_2 2^3} = \frac{5}{3}$

(9) $\frac{\log_2 8}{\log_2 3} \cdot \frac{\log_2 3}{\log_2 4} = \frac{\log_2 2^3}{\log_2 2^2} = \frac{3}{2}$