

2011年3科型第12問



12 次の値を求めよ.

$$(1) \sqrt{8} \div \sqrt[3]{16} \times \sqrt[6]{32} = \boxed{2}$$

$$(2) 2\log_{10} \frac{1}{5} + \log_{10} 3 - \log_{10} 12 = \boxed{-2}$$

$$\begin{aligned}
 (1) \text{ (与式)} &= 8^{\frac{1}{2}} \div 16^{\frac{1}{3}} \times 32^{\frac{1}{6}} \\
 &= (2^3)^{\frac{1}{2}} \div (2^4)^{\frac{1}{3}} \times (2^5)^{\frac{1}{6}} \\
 &= 2^{\frac{3}{2}} \div 2^{\frac{4}{3}} \times 2^{\frac{5}{6}} \\
 &= 2^{\frac{3}{2} - \frac{4}{3} + \frac{5}{6}} \\
 &= 2^{\frac{9-8+5}{6}} \\
 &= 2^{\frac{6}{6}} \\
 &= 2 \\
 &= \underline{\underline{2}}
 \end{aligned}$$

$$\begin{aligned}
 (2) \text{ (与式)} &= 2\log_{10} 1 - 2\log_{10} 5 + \log_{10} 3 - (\log_{10} 2^2 + \log_{10} 3) \\
 &= -2\log_{10} 5 - 2\log_{10} 2 \\
 &= -2(\log_{10} 5 + \log_{10} 2) \\
 &= -2\log_{10} 10 \\
 &= -2 \\
 &= \underline{\underline{-2}}
 \end{aligned}$$