

①
a

$$\frac{\sqrt{\sqrt{2}}}{16} = 4^m \cdot 2^{\cancel{m}} = \frac{2^{\frac{1 \times 1}{2 \times 2}}}{16}$$

$$\frac{\sqrt[2 \times 2]{2}}{16} = \cancel{2^m} 2^m \quad 2^m = \frac{\sqrt[4]{2}}{16}$$

$$\log_2 \frac{\sqrt[4]{2}}{16} = m \quad m = \frac{\log \frac{\sqrt[4]{2}}{16}}{\log 2}$$

⑥ $\frac{\sqrt{2}}{16} = 2^m \quad m = \log_2 \cdot \frac{\sqrt{2}}{16}$

$$m = \frac{\log \frac{\sqrt{2}}{16}}{\log 2}$$

② $\sqrt[3]{\frac{8^3 a}{27 b^3}} = \frac{\sqrt[3]{512 \cdot a}}{\sqrt[3]{27 b^3}} = \frac{\sqrt[3]{512} \cdot \sqrt[3]{a}}{\sqrt[3]{27} \cdot \sqrt[3]{b^3}} =$

$$\frac{8 \sqrt[3]{a}}{3 \sqrt[3]{b^3}} = \frac{8 \sqrt[3]{a}}{3 b}$$

$$\textcircled{b} \left(\frac{27x^3}{64} \right)^{\frac{2}{3}} = \frac{(27x^3)^{\frac{2}{3}}}{64^{\frac{2}{3}}} =$$

$$\frac{27^{\frac{2}{3}} (x^3)^{\frac{2}{3}}}{64^{\frac{2}{3}}} = \frac{(3^3)^{\frac{2}{3}} (x^3)^{\frac{2}{3}}}{64^{\frac{2}{3}}} =$$

$$\frac{3^{\frac{3 \times 2}{3}} \cancel{x^{\frac{3 \times 2}{3}}}}{64^{\frac{2}{3}}} = \frac{3^{\frac{6}{3}} \times \frac{6}{3}}{64^{\frac{2}{3}}} =$$

$$\frac{3^2 x^2}{64^{\frac{2}{3}}} = \frac{9 x^2}{64^{\frac{2}{3}}} = \frac{9 x^2}{(2^6)^{\frac{2}{3}}} =$$

$$\frac{9 x^2}{2^{\frac{6 \times 2}{3}}} = \frac{9 x^2}{2^{\frac{12}{3}}} = \frac{9 x^2}{2^4}$$

$$\frac{9 x^2}{16}$$

$$\begin{array}{r} 2x^6 - 4x^4 + 2x^3 - 3x^2 + x + 1 \\ \hline x^2 - 2x + 1 \end{array}$$

$$\begin{array}{r} 2x^6 - 4x^4 + 2x^3 - 3x^2 + x + 1 \quad | \quad x^2 - 2x + 1 \\ -(2x^6 - 4x^5 + 2x^4) \end{array}$$

$$\begin{array}{r} 4x^5 - 6x^4 + 2x^3 - 3x^2 + x + 1 \quad | \quad x^2 - 2x + 1 \\ -(4x^5 - 8x^4 + 4x^3) \end{array}$$

$$\begin{array}{r} 2x^4 - 2x^3 - 3x^2 + x + 1 \quad | \quad x^2 - 2x + 1 \\ -(2x^4 - 4x^3 + 2x^2) \end{array}$$

$$\begin{array}{r} 2x^3 - 5x^2 + x + 1 \quad | \quad x^2 - 2x + 1 \\ -(2x^3 - 4x^2 + 2x) \end{array}$$

$$\begin{array}{r} 2x^3 - 5x^2 + x + 1 \\ -(2x^3 - 4x^2 + 2x) \\ \hline -x^2 - x + 1 \\ -(-x^2 + 2x - 1) \\ \hline -3x + 2 \end{array}$$

$$\begin{array}{r} x^2 - 2x + 1 \\ 2x \quad | \quad x^2 - 2x + 1 \\ \hline -1 \end{array}$$

$$2x^4 + 4x^3 + 2x^2 + 2x - 1 - \frac{3x + 2}{x^2 - 2x + 1}$$

④

$$\textcircled{a} \quad 2a^2 + 21a + 90 =$$

$$(2a^2 + 9a) + (20a + 90) =$$

$$a(2a + 9) + 10(2a + 9) =$$

$$(2a + 9)(a + 10)$$

⑥

$$216y^3 - \frac{1}{216y^3} = \text{use same operation}$$