

解答

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|--------------------------|-------------------------|------------------------|
| 1. (1) 7 | (2) 2 | (3) 2 |
| 2. (1) 1 | (2) $\frac{1}{27}$ | (3) 16 |
| (4) $\frac{1}{729}$ | (5) $\frac{1}{49}$ | (6) $\frac{1}{25}$ |
| (7) 11 | (8) 324 | (9) $\frac{3}{4}$ |
| 3. (1) $2^{\frac{1}{6}}$ | (2) $6^{\frac{1}{6}}$ | (3) $5^{-\frac{2}{3}}$ |
| 4. (1) $\sqrt[6]{a^5}$ | (2) $\sqrt[5]{a^3}$ | (3) $\sqrt[8]{a^5}$ |
| (4) $\frac{1}{\sqrt{a}}$ | (5) $\sqrt[15]{a^{16}}$ | (6) $\sqrt[12]{a}$ |

解説

1. (1) 与式 = 7 (2) 与式 = $\sqrt[8]{2^3 \times 2^5} = \sqrt[8]{2^8} = (\sqrt[8]{2})^8 = 2$
 (3) 与式 = $\sqrt[6]{2^2} \sqrt[6]{2^4} = \sqrt[6]{2^2 \times 2^4} = \sqrt[6]{2^6} = (\sqrt[6]{2})^6 = 2$
2. (1) 与式 = 1 (2) 与式 = $\frac{1}{3^3} = \frac{1}{27}$
 (3) 与式 = $2^4 = 16$ (4) 与式 = $\frac{1}{(3^2)^3} = \frac{1}{3^6} = \frac{1}{729}$
 (5) 与式 = $7^{4+(-6)} = 7^{-2} = \frac{1}{49}$ (6) 与式 = $5^{3-5} = 5^{-2} = \frac{1}{25}$
 (7) 与式 = $11^4 \times (11^{-1})^3 = 11^4 \times 11^{-3} = 11^{4-3} = 11$
 (8) 与式 = $(2 \times 3)^4 \times 2^{-2} = 2^4 \times 3^4 \times 2^{-2} = 2^{4-2} \times 3^4 = 4 \times 81 = 324$
 (9) 与式 = $(2^2 \times 3^2)^2 \times 3^{-3} \times (2^{-1})^6 = 2^4 \times 3^4 \times 3^{-3} \times 2^{-6} = 2^{4-6} \times 3^{4-3} = 2^{-2} \times 3 = \frac{3}{4}$
3. (1) 与式 = $2^{\frac{1}{6}}$ (2) 与式 = $(6^{\frac{2}{4}})^{\frac{1}{3}} = 6^{\frac{1}{2} \times \frac{1}{3}} = 6^{\frac{1}{6}}$ (3) 与式 = $\frac{1}{5^{\frac{2}{3}}} = 5^{-\frac{2}{3}}$
4. (1) 与式 = $\sqrt[6]{a^5}$ (2) 与式 = $a^{\frac{6}{10}} = a^{\frac{3}{5}} = \sqrt[5]{a^3}$
 (3) 与式 = $a^{\frac{3}{8} + \frac{1}{4}} = a^{\frac{5}{8}} = \sqrt[8]{a^5}$ (4) 与式 = $a^{\frac{1}{3} - \frac{5}{6}} = a^{-\frac{1}{2}} = \frac{1}{\sqrt{a}}$
 (5) 与式 = $a^{\frac{2}{3} + \frac{2}{5}} = a^{\frac{16}{15}} = \sqrt[15]{a^{16}}$ (6) 与式 = $a^{\frac{3}{4} - \frac{2}{3}} = a^{\frac{1}{12}} = \sqrt[12]{a}$