

빠른 정답

| | | | | | | | | | |
|----|----|----|----|----|----|----|----|-----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| ③ | ③ | ③ | ③ | ③ | ③ | 16 | 81 | 243 | ④ |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| ③ | ② | ④ | ③ | ③ | ④ | ④ | ③ | ③ | ③ |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| ② | ② | ③ | ② | ③ | ③ | ③ | ④ | ① | ③ |

1

$$\begin{aligned} & \sqrt[3]{(-6.4) \times 10^4} \\ &= \sqrt[3]{-64 \times 10^3} \\ &= \sqrt[3]{(-4)^3 \times 10^3} \\ &= -4 \times 10 = -40 \end{aligned}$$

정답 ③

2

$$\begin{aligned} & (-2.7) \times 10^4 = -27000 = (-30)^3 \\ \therefore & \sqrt[3]{(-2.7) \times 10^4} = -30 \end{aligned}$$

정답 ③

3

$$\begin{aligned} & (-0.08) \times 10^5 = -8000 = (-20)^3 \\ \therefore & \sqrt[3]{(-0.08) \times 10^5} = -20 \end{aligned}$$

정답 ③

4

$$\begin{aligned} & 5^3 = 125, 6^3 = 216 \text{ 이므로 } a = 5 \\ & 5.5^3 = 166.375, 5.6^3 = 175.616 \\ & 166.375 \leq 173 < 175.616 \\ \therefore & b = 5, a + b = 10 \end{aligned}$$

정답 ③

5

$$\begin{aligned} & 3^3 = 27, 4^3 = 64 \text{ 이므로 } a = 3 \\ & 3.6^3 = 46.656, 3.7^3 = 50.653 \\ & 46.656 \leq 47 < 50.653 \\ \therefore & b = 6, a + b = 9 \end{aligned}$$

정답 ③

6

$$\begin{aligned} & 3^3 = 27, 4^3 = 64 \text{ 이므로 } a = 3 \\ & 3.7^3 = 50.653, 3.8^3 = 54.872 \\ & 50.653 < 54 < 54.872 \\ \therefore & b = 7, a + b = 10 \end{aligned}$$

정답 ③

7

$$\begin{aligned} \frac{(2 \times 2^{\sqrt{2}})^{\sqrt{2}}}{2^{\sqrt{2}-2}} &= \frac{(2^{1+\sqrt{2}})^{\sqrt{2}}}{2^{\sqrt{2}-2}} \\ &= \frac{2^{\sqrt{2}+2}}{2^{\sqrt{2}-2}} \\ &= 2^{(\sqrt{2}+2)-(\sqrt{2}-2)} \\ &= 2^4 = 16 \end{aligned}$$

정답 16

8

$$\begin{aligned} \frac{(3 \times 3^{\sqrt{3}})^{\sqrt{3}}}{3^{\sqrt{3}-1}} &= \frac{(3^{1+\sqrt{3}})^{\sqrt{3}}}{3^{\sqrt{3}-1}} \\ &= \frac{3^{\sqrt{3}+3}}{3^{\sqrt{3}-1}} \\ &= 3^{(\sqrt{3}+3)-(\sqrt{3}-1)} \\ &= 3^4 = 81 \end{aligned}$$

정답 81

9

$$\begin{aligned} \frac{(3 \times 3^{\sqrt{3}})^{\sqrt{3}}}{3^{\sqrt{3}-2}} &= \frac{3^{\sqrt{3}+3}}{3^{\sqrt{3}-2}} \\ &= 3^{(\sqrt{3}+3)-(\sqrt{3}-2)} \\ &= 3^5 = 243 \end{aligned}$$

정답 243

10

$$\begin{aligned} f(0) &= 3^{-\frac{1}{3}} \\ f(6) &= 9^{-\frac{1}{3}} = 3^{-\frac{2}{3}} \\ f(0) \times f(6) &= 3^{-1} = \frac{1}{3} \end{aligned}$$

정답 ④

11

$$\begin{aligned} f(0) &= 2^{-\frac{3}{4}} \\ f(6) &= 8^{-\frac{3}{4}} = 2^{-\frac{9}{4}} \\ f(0) \times f(6) &= 2^{-3} = \frac{1}{8} \end{aligned}$$

정답 ③

12

$$\begin{aligned} f(0) &= 5^{-\frac{3}{4}} \\ f(120) &= 125^{-\frac{3}{4}} = 5^{-\frac{9}{4}} \\ f(0) \times f(120) &= 5^{-3} = \frac{1}{125} \end{aligned}$$

정답 ②

13

$$\begin{aligned} 3^a &= 5 \text{에서 } a = \log_3 5 \\ a - 2b &= \log_3 5 - 2\log_3(3\sqrt{5}) \\ &= \log_3 5 - \log_3(9 \times 5) \\ &= \log_3 \frac{5}{45} = \log_3 \frac{1}{9} \\ &= -2 \end{aligned}$$

정답 ④

14

$$\begin{aligned} 2^a &= 7 \text{에서 } a = \log_2 7 \\ a - 2b &= \log_2 7 - \log_2(2\sqrt{7})^2 \\ &= \log_2 7 - \log_2 28 \\ &= \log_2 \frac{1}{4} = -2 \end{aligned}$$

정답 ③

15

$$\begin{aligned} 4^a &= 3 \text{에서 } a = \log_4 3 \\ a - 2b &= \log_4 3 - \log_4(4\sqrt{3})^2 \\ &= \log_4 3 - \log_4 48 \\ &= \log_4 \frac{1}{16} = -2 \end{aligned}$$

정답 ③

16

$$\begin{aligned} 2\log_2 \sqrt[4]{7} + \log_2 \sqrt{42} - \frac{1}{2}\log_2 3 \\ &= \log_2 \sqrt{7} + \log_2 \sqrt{42} - \log_2 \sqrt{3} \\ &= \log_2 \sqrt{\frac{7 \times 42}{3}} \\ &= \log_2 \sqrt{98} \\ &= \log_2(7\sqrt{2}) \\ &= \log_2 7 + \frac{1}{2} \end{aligned}$$

정답 ④

17

$$\begin{aligned}
 & 2\log_5 \sqrt[4]{35} + \log_5 \sqrt{21} - \frac{1}{2}\log_5 3 \\
 &= \log_5 \sqrt{35} + \log_5 \sqrt{21} - \log_5 \sqrt{3} \\
 &= \log_5 \sqrt{\frac{35 \times 21}{3}} \\
 &= \log_5 \sqrt{245} \\
 &= \log_5 (7\sqrt{5}) \\
 &= \log_5 7 + \frac{1}{2}
 \end{aligned}$$

정답 ④

18

$$\begin{aligned}
 & 2\log_3 \sqrt[4]{126} + \log_3 \sqrt{6} - \frac{1}{2}\log_3 7 \\
 &= \log_3 \sqrt{126} + \log_3 \sqrt{6} - \log_3 \sqrt{7} \\
 &= \log_3 \sqrt{\frac{126 \times 6}{7}} \\
 &= \log_3 \sqrt{108} = \log_3 (6\sqrt{3}) \\
 &= \log_3 6 + \frac{1}{2} \\
 &= 1 + \log_3 2 + \frac{1}{2} = \frac{3}{2} + \log_3 2
 \end{aligned}$$

정답 ③

19

$$\begin{aligned}
 \log_8 27 &= \log_2 3 \\
 \log_3 25 &= 2\log_3 5 \\
 \log_5 16 &= 4\log_5 2 \\
 \therefore \log_2 3 \times 2\log_3 5 \times 4\log_5 2 \\
 &= 8 \times (\log_2 3 \cdot \log_3 5 \cdot \log_5 2) \\
 &= 8 \times 1 = 8
 \end{aligned}$$

정답 ③

20

$$\begin{aligned}
 \log_5 343 &= 3\log_5 7 \\
 \log_{49} 3 &= \frac{1}{2}\log_7 3 \\
 \therefore 3\log_5 7 \times \frac{1}{2}\log_7 3 \times \log_3 5 \\
 &= \frac{3}{2} \times 1 = \frac{3}{2}
 \end{aligned}$$

정답 ③

21

$$\begin{aligned}
 \log_{125} 4 &= \frac{2\log 2}{3\log 5} \\
 \log_7 625 &= \frac{4\log 5}{\log 7} \\
 \therefore \frac{2\log 2}{3\log 5} \times \frac{\log 7}{\log 2} \times \frac{4\log 5}{\log 7} \\
 &= \frac{8}{3}
 \end{aligned}$$

정답 ②

22

$$\begin{aligned}
 & (\log_2 12 - \log_2 4)(\log_3 \frac{2}{5} + 2\log_9 10) \\
 &= \log_2 \frac{12}{4} \times (\log_3 \frac{2}{5} + \log_3 10) \\
 &= \log_2 3 \times \log_3 4 \\
 &= \log_2 3 \times 2\log_3 2 \\
 &= 2
 \end{aligned}$$

정답 ②

23

$$\begin{aligned}
 & (\log_3 54 - \log_3 27)(\log_2 \frac{9}{4} + 2\log_4 12) \\
 &= \log_3 2 \times (\log_2 \frac{9}{4} + \log_2 12) \\
 &= \log_3 2 \times \log_2 27 \\
 &= \log_3 2 \times 3\log_2 3 \\
 &= 3
 \end{aligned}$$

정답 ③

24

$$\begin{aligned}
 & (\log_2 50 - \log_2 10)(\log_5 \frac{1}{3} + 2\log_{25} 12) \\
 &= \log_2 5 \times (\log_5 \frac{1}{3} + \log_5 12) \\
 &= \log_2 5 \times \log_5 4 \\
 &= \log_2 5 \times 2\log_5 2 \\
 &= 2
 \end{aligned}$$

정답 ②

25

$$\begin{aligned}
 \log \sqrt{12} &= \frac{1}{2} \log 12 \\
 &= \frac{1}{2}(2\log 2 + \log 3) \\
 &= \frac{1}{2}(2 \times 0.30 + 0.48) \\
 &= \frac{1.08}{2} = 0.54
 \end{aligned}$$

정답 ③

26

$$\begin{aligned}
 \log \sqrt[3]{96} &= \frac{1}{3} \log 96 \\
 &= \frac{1}{3}(5\log 2 + \log 3) \\
 &= \frac{1}{3}(5 \times 0.30 + 0.48) \\
 &= \frac{1.98}{3} = 0.66
 \end{aligned}$$

정답 ③

27

$$\begin{aligned}
 \log \sqrt[3]{54} &= \frac{1}{3} \log 54 \\
 &= \frac{1}{3}(\log 2 + 3\log 3) \\
 &= \frac{1}{3}(0.30 + 3 \times 0.48) \\
 &= \frac{1.74}{3} = 0.58
 \end{aligned}$$

정답 ③

28

$$\begin{aligned}
 \log_3 \frac{4}{81} &= \frac{\log 4 - \log 81}{\log 3} \\
 &= \frac{2\log 2 - 4\log 3}{\log 3} \\
 &= \frac{2a - 4b}{b}
 \end{aligned}$$

정답 ④

29

$$\begin{aligned}
 \log_2 \frac{343}{4} &= \frac{\log 7^3 - \log 2^2}{\log 2} \\
 &= \frac{3\log 7 - 2\log 2}{\log 2} \\
 &= \frac{3a - 2b}{b}
 \end{aligned}$$

정답 ①

30

$$\begin{aligned}
 \log_5 \frac{243}{25} &= \frac{\log 3^5 - \log 5^2}{\log 5} \\
 &= \frac{5\log 3 - 2\log 5}{\log 5} \\
 &= \frac{5a - 2b}{b}
 \end{aligned}$$

정답 ③