## 지수와 로그 초급 문제 전체 풀이

1. 
$$(\sqrt{16} + \sqrt{25}) \times 2^{(-2)}$$

$$\circ = (4+5) imes rac{1}{4}$$
  $\circ = 9 imes rac{1}{4} = rac{9}{4}$ 

$$\circ = 9 \times \frac{1}{4} = \frac{9}{4}$$

2. 
$$(\sqrt[3]{27} \times \sqrt[3]{64}) \div 3^0$$

$$\circ = (3 \times 4) \div 1$$

$$\circ = 12$$

3. 
$$(\sqrt{48} \times \sqrt{75}) \div \sqrt{3}$$

$$\circ = (\sqrt{16 \times 3} \times \sqrt{25 \times 3}) \div \sqrt{3}$$

$$\circ = (4\sqrt{3} \times 5\sqrt{3}) \div \sqrt{3}$$

$$\circ = 20 \times 3 = 60$$

4. 
$$(2^3)^{(-1)} imes 4^2 imes \sqrt{9}$$

$$\circ = \frac{1}{8} \times 16 \times 3$$

$$\circ = 6$$

5. 
$$\log_2 16 + \log_2 4 \times (\sqrt{16})^0$$

$$\circ = 4 + 2 \times 1$$

$$\circ = 6$$

6. 
$$3^2 \times 3^{(-1)} \times \sqrt{9} + \sqrt[3]{8}$$

$$\begin{array}{l} \circ &= 9 \times \frac{1}{3} \times 3 + 2 \\ \circ &= 9 + 2 = 11 \end{array}$$

$$\circ = 9 + 2 = 11$$

7. 
$$(\sqrt{100} + \sqrt{25}) \times 2^{(-1)} - \sqrt[3]{27}$$

$$\circ = \frac{15}{2} - 3 = \frac{9}{2}$$

8. 
$$\log_3 27 imes (\sqrt[3]{27})^0 + \log_3 9$$

$$\circ = 3 \times 1 + 2$$

$$\circ = 5$$

9. 
$$(4^2)^{(-1)} imes \sqrt{64} + 2^{(-2)}$$

$$\circ = \frac{1}{16} \times 8 + \frac{1}{2}$$

$$\circ = \frac{1}{16} \times 8 + \frac{1}{4} 
\circ = \frac{1}{2} + \frac{1}{4} = \frac{3}{4}$$

10. 
$$(\sqrt{36} + \sqrt[3]{8}) \times 2^0 - \log_2 16$$

$$\circ = (6+2) \times 1 - 4$$

$$\circ = 8 - 4 = 4$$

11. 
$$(\log_2 8 + \log_2 2) \times \sqrt{16} - \log_2 4$$

$$\circ = (3+1) \times 4 - 2$$

$$\circ = 16 - 2 = 8$$

12. 
$$(3^2)^{(-1)} \times (\sqrt{9})^2 + \sqrt[3]{125}$$

$$\circ = \frac{1}{9} \times 9 + 5$$

$$\circ = 1 + 5 = 6$$

13. 
$$(\sqrt{81} \div \sqrt{9}) \times 3^{(-1)} + \log_2 32$$

$$\circ = (9 \div 3) \times \frac{1}{3} + 5$$

$$\circ = 1 + 5 = 6$$

14. 
$$\log_4 64 + \log_4 4 - (\sqrt[3]{8})^2$$

$$\circ = 3 + 1 - 2^2$$

$$\circ = 4 - 4 = 0$$

15. 
$$(2^4)^{(-1)} imes (\sqrt{16})^2 imes 3^0$$

$$\circ = \frac{1}{16} \times 16 \times 1$$

$$\circ = 1$$

16. 
$$(\sqrt[3]{125} imes \sqrt[3]{8}) imes 5^{(-1)} + \sqrt{16}$$

$$\circ = (5 \times 2) \times \frac{1}{5} + 4$$

$$\circ = 2 + 4 = 6$$

17. 
$$\log_2 32 - \log_2 8 + (\sqrt{9})^0$$

$$\circ = 5 - 3 + 1$$

$$\circ = 3$$

18. 
$$(4^{(-2)} imes \sqrt{256}) \div 2^0 + \sqrt[3]{27}$$

$$\circ = (\frac{1}{16} \times 16) \div 1 + 3$$

$$\circ = 1 + 3 = 4$$

19. 
$$(\sqrt{144} + \sqrt[3]{27}) imes 3^{(-1)} - \log_3 81$$

$$\circ = (12+3) \times \frac{1}{3} - 4$$

$$\circ = 5 - 4 = 1$$

20. 
$$\log_3 81 imes (\sqrt[3]{9})^0 + \log_3 3$$

$$\circ = 4 \times 1 + 1$$

$$\circ = 5$$

21. 
$$(\sqrt{49} + \sqrt{64}) imes 2^{(-2)} imes \sqrt[3]{8}$$

$$\circ = (7+8) \times \frac{1}{4} \times 2$$
  
 $\circ = \frac{15}{4} \times 2 = \frac{15}{2}$ 

22. 
$$(\sqrt[3]{216} imes \sqrt[3]{27}) \div 3^2 + \sqrt{4}$$

$$\circ = (6 \times 3) \div 9 + 2$$

$$\circ = 2 + 2 = 4$$

23. 
$$\log_2 64 + \log_2 8 \times (\sqrt{25})^0$$

$$\circ = 6 + 3 \times 1$$

$$\circ = 9$$

24. 
$$4^2 \times 4^{(-1)} \times \sqrt{16} + \sqrt[3]{64}$$

$$\circ = 16 \times \frac{1}{4} \times 4 + 4$$

$$\circ = 16 + 4 = 20$$

25. 
$$(\sqrt{225} + \sqrt{36}) \times 2^{(-1)} - \sqrt[3]{125}$$

$$\circ = (15+6) \times \frac{1}{2} - 5$$

$$\circ = 10.5 - 5 = 5.5$$

26. 
$$\log_4 256 imes (\sqrt[3]{64})^0 + \log_4 16$$

$$\circ = 4 \times 1 + 2$$

$$\circ = 6$$

27. 
$$(5^2)^{(-1)} imes \sqrt{400} + 2^{(-3)}$$

$$\circ = \frac{1}{25} \times 20 + \frac{1}{8}$$

$$\circ = \frac{1}{25} \times 20 + \frac{1}{8} 
\circ = \frac{4}{5} + \frac{1}{8} = \frac{39}{40}$$

28. 
$$(\sqrt{121} + \sqrt[3]{216}) \times 2^0 - \log_2 256$$

$$\circ = (11+6) \times 1 - 8$$

$$\circ = 17 - 8 = 9$$

29. 
$$(\log_2 16 + \log_2 4) \times \sqrt{25} - \log_2 8$$

$$\circ = (4+2) imes 5-3$$

$$\circ = 30 - 3 = 27$$

30. 
$$(4^2)^{(-1)} imes (\sqrt{16})^2 + \sqrt[3]{27}$$

$$\circ \ = \tfrac{1}{16} \times 16 + 3$$

$$\circ = 1 + 3 = 4$$

31. 
$$(\sqrt{144} \div \sqrt{36}) \times 2^{(-1)} + \log_2 128$$

$$\circ = (12 \div 6) \times \frac{1}{2} + 7$$

$$\circ = 1 + 7 = 8$$

32. 
$$\log_3 243 + \log_3 9 - (\sqrt[3]{27})^2$$

$$\circ = 5 + 2 - 9$$

$$\circ = -2$$

33. 
$$(2^5)^{(-1)} imes (\sqrt{32})^2 imes 4^0$$

$$\circ = \frac{1}{32} \times 32 \times 1$$

$$\circ = 1$$

34. 
$$(\sqrt[3]{216} \times \sqrt[3]{8}) \times 6^{(-1)} + \sqrt{9}$$

$$\circ = (6 \times 2) imes rac{1}{6} + 3$$

$$\circ = 2 + 3 = 5$$

35. 
$$\log_2 256 - \log_2 32 + (\sqrt{16})^0$$

$$\circ = 8 - 5 + 1$$

$$\circ = 4$$

36. 
$$(5^{(-2)} \times \sqrt{225}) \div 3^0 + \sqrt[3]{8}$$

$$\circ = \frac{1}{25} \times 15 \div 1 + 2 
\circ = \frac{3}{5} + 2 = \frac{13}{5}$$

$$\circ = \frac{3}{5} + 2 = \frac{13}{5}$$

37. 
$$(\sqrt{169} + \sqrt[3]{125}) \times 2^{(-1)} - \log_4 256$$

$$\circ = (13+5) \times \frac{1}{2} - 4$$

$$\circ = 9 - 4 = 5$$

38. 
$$\log_5 125 imes (\sqrt[3]{25})^0 + \log_5 5$$

$$\circ = 3 \times 1 + 1$$

$$\circ = 4$$

39. 
$$(\sqrt{81} + \sqrt{100}) \times 2^{(-2)} \times \sqrt[3]{27}$$

$$egin{array}{ll} \circ &= (9+10) imes rac{1}{4} imes 3 \ \circ &= rac{19}{4} imes 3 = rac{57}{4} \end{array}$$

$$\circ = \frac{19}{4} \times 3 = \frac{57}{4}$$

40. 
$$(\sqrt[3]{343} \times \sqrt[3]{8}) \div 7^2 + \sqrt{16}$$

$$\circ = (7 \times 2) \div 49 + 4$$

$$\circ = \frac{14}{49} + 4 = \frac{210}{49}$$

41. 
$$\log_2 128 + \log_2 16 \times (\sqrt{36})^0$$

$$\circ = 7 + 4 \times 1$$

$$\circ = 11$$

42. 
$$3^3 \times 3^{(-2)} \times \sqrt{9} + \sqrt[3]{216}$$

$$\circ = 27 \times \frac{1}{9} \times 3 + 6$$

$$\circ = 9 + 6 = 15$$

43. 
$$(\sqrt{256} + \sqrt{49}) \times 2^{(-1)} - \sqrt[3]{64}$$

$$\circ = (16+7) \times \frac{1}{2} - 4$$

$$\circ = \frac{23}{2} - 4 = \frac{15}{2}$$

$$\circ = \frac{23}{2} - 4 = \frac{15}{2}$$

44. 
$$\log_3 81 \times (\sqrt[3]{125})^0 + \log_3 27$$

$$\circ = 4 \times 1 + 3$$

$$\circ = 7$$

45. 
$$(6^2)^{(-1)} \times \sqrt{324} + 2^{(-2)}$$

$$\circ = \frac{1}{36} \times 18 + \frac{1}{4}$$

$$\circ = \frac{1}{36} \times 18 + \frac{1}{4} 
\circ = \frac{1}{2} + \frac{1}{4} = \frac{3}{4}$$

46. 
$$(\sqrt{225} + \sqrt[3]{343}) \times 2^0 - \log_2 128$$

$$\circ = (15+7) \times 1 - 7$$

$$\circ = 22 - 7 = 15$$

47. 
$$(\log_2 32 + \log_2 8) \times \sqrt{9} - \log_2 16$$

$$\circ = (5+3) \times 3 - 4$$

$$\circ = 24 - 4 = 20$$

48. 
$$(5^2)^{(-1)} imes (\sqrt{25})^2 + \sqrt[3]{125}$$

$$\circ = \frac{1}{25} imes 25 + 5$$

$$\circ = 1 + 5 = 6$$

49. 
$$(\sqrt{196} \div \sqrt{49}) \times 3^{(-1)} + \log_2 64$$

$$\circ = (14 \div 7) \times \frac{1}{3} + 6 
\circ = \frac{2}{3} + 6 = \frac{20}{3}$$

$$\circ = \frac{2}{3} + 6 = \frac{20}{3}$$

50. 
$$\log_4 256 + \log_4 16 - (\sqrt[3]{64})^2$$

$$\circ = 4 + 2 - 16$$

$$\circ = -10$$

51. 
$$(2^6)^{(-1)} imes (\sqrt{64})^2 imes 5^0$$

$$\circ = \frac{1}{64} \times 64 \times 1$$

$$\circ = 1$$

$$\circ = 1$$

52. 
$$(\sqrt[3]{216} \times \sqrt[3]{27}) \times 3^{(-1)} + \sqrt{4}$$

$$\circ = (6 \times 3) \times \frac{1}{3} + 2$$

$$\circ = 6 + 2 = 8$$

53. 
$$\log_2 256 - \log_2 64 + (\sqrt{25})^0$$

$$\circ = 8 - 6 + 1$$

$$\circ = 3$$

54. 
$$(4^{(-2)} \times \sqrt{144}) \div 2^0 + \sqrt[3]{27}$$

$$\circ = (\frac{1}{16} \times 12) \div 1 + 3$$
  
 $\circ = \frac{3}{4} + 3 = \frac{15}{4}$ 

55. 
$$(\sqrt{289} + \sqrt[3]{125}) \times 3^{(-1)} - \log_3 243$$

$$\circ = (17+5) \times \frac{1}{3} - 5$$

$$\circ = \frac{22}{3} - 5 = \frac{7}{3}$$

$$\circ = \frac{22}{3} - 5 = \frac{7}{3}$$

56. 
$$\log_5 125 imes (\sqrt[3]{8})^0 + \log_5 25$$

$$\circ = 3 \times 1 + 2$$

$$\circ = 5$$

57. 
$$(\sqrt{100} + \sqrt{121}) imes 2^{(-2)} imes \sqrt[3]{8}$$

$$egin{array}{ll} \circ &= (10+11) imes rac{1}{4} imes 2 \ \circ &= rac{21}{4} imes 2 = rac{21}{2} \end{array}$$

$$\circ = \frac{21}{4} \times 2 = \frac{21}{2}$$

58. 
$$(\sqrt[3]{125} \times \sqrt[3]{216}) \div 5^2 + \sqrt{9}$$

$$\circ = (5 \times 6) \div 25 + 3$$

$$\circ = (5 \times 6) \div 25 + 3$$
  
 $\circ = \frac{30}{25} + 3 = \frac{105}{25}$ 

59. 
$$\log_2 128 + \log_2 32 \times (\sqrt{16})^0$$

$$\circ = 7 + 5 \times 1$$

60. 
$$4^2 imes 4^{(-1)} imes \sqrt{25} + \sqrt[3]{216}$$

$$\circ = 16 \times \frac{1}{4} \times 5 + 6$$
  
 $\circ = 20 + 6 = 26$ 

$$0 = 20 + 6 = 26$$

61. 
$$(\sqrt{324} + \sqrt{81}) imes 2^{(-1)} - \sqrt[3]{343}$$

$$\begin{array}{l} \circ &= (18+9) \times \frac{1}{2} - 7 \\ \circ &= \frac{27}{2} - 7 = \frac{13}{2} \end{array}$$

$$\circ = \frac{27}{2} - 7 = \frac{13}{2}$$

62. 
$$\log_4 256 imes (\sqrt[3]{27})^0 + \log_4 64$$

$$\circ = 4 \times 1 + 3$$

$$\circ = 7$$

63. 
$$(7^2)^{(-1)} \times \sqrt{441} + 2^{(-3)}$$

$$\circ = \frac{1}{49} \times 21 + \frac{1}{8}$$

$$\circ = \frac{1}{49} \times 21 + \frac{1}{8} 
\circ = \frac{21}{49} + \frac{1}{8} = \frac{217}{392}$$

64. 
$$(\sqrt{144} + \sqrt[3]{125}) imes 2^0 - \log_2 256$$

$$\circ = (12+5) \times 1 - 8$$

$$\circ = 17 - 8 = 9$$

65. 
$$(\log_2 64 + \log_2 16) imes \sqrt{9} - \log_2 32$$

$$\circ = (6+4) \times 3 - 5$$

$$\circ = 30 - 5 = 25$$

66. 
$$(3^3)^{(-1)} \times (\sqrt{27})^2 + \sqrt[3]{64}$$

$$\circ = \frac{1}{27} \times 27 + 4$$

$$\circ = 1 + 4 = 5$$

67. 
$$(\sqrt{225} \div \sqrt{25}) \times 2^{(-1)} + \log_2 128$$

$$\circ = (15 \div 5) \times \frac{1}{2} + 7$$
  
 $\circ = \frac{3}{2} + 7 = \frac{17}{2}$ 

$$\circ = \frac{3}{2} + 7 = \frac{17}{2}$$

68. 
$$\log_3 243 + \log_3 27 - (\sqrt[3]{125})^2$$

$$\circ = 5 + 3 - 25$$

$$\circ = -17$$

69. 
$$(2^5)^{(-1)} imes (\sqrt{128})^2 imes 3^0$$

$$\begin{array}{l} \circ &= \frac{1}{32} \times 128 \times 1 \\ \circ &= 4 \end{array}$$

$$\circ = 4$$

70. 
$$(\sqrt[3]{216} \times \sqrt[3]{125}) \times 6^{(-1)} + \sqrt{16}$$

$$\circ = (6 \times 5) \times \frac{1}{6} + 4$$

$$\circ = 5 + 4 = 9$$

71. 
$$\log_2 256 - \log_2 64 + (\sqrt{36})^0$$

$$\circ = 8 - 6 + 1$$

$$\circ = 3$$

72. 
$$(5^{(-2)} imes \sqrt{400}) \div 2^0 + \sqrt[3]{27}$$

$$\circ = (\frac{1}{25} \times 20) \div 1 + 3$$
  
 $\circ = \frac{4}{5} + 3 = \frac{19}{5}$ 

$$\circ = \frac{4}{5} + 3 = \frac{19}{5}$$

73. 
$$(\sqrt{196} + \sqrt[3]{216}) imes 3^{(-1)} - \log_4 256$$

$$\circ = (14+6) \times \frac{1}{3} - 4$$
  
 $\circ = \frac{20}{3} - 4 = \frac{8}{3}$ 

$$\circ = \frac{20}{3} - 4 = \frac{8}{3}$$

74. 
$$\log_5 125 imes (\sqrt[3]{64})^0 + \log_5 25$$

$$\circ = 3 \times 1 + 2$$

$$\circ = 5$$

75. 
$$(\sqrt{144} + \sqrt{169}) \times 2^{(-2)} \times \sqrt[3]{8}$$

$$egin{array}{ll} \circ &= (12+13) imes rac{1}{4} imes 2 \ \circ &= rac{25}{4} imes 2 = rac{25}{2} \end{array}$$

$$\circ = \frac{25}{4} \times 2 = \frac{25}{2}$$

76. 
$$(\sqrt[3]{343} \times \sqrt[3]{27}) \div 7^2 + \sqrt{25}$$

$$\circ = (7 \times 3) \div 49 + 5$$

$$\circ = (7 \times 3) \div 49 + 5$$
  
 $\circ = \frac{21}{49} + 5 = \frac{266}{49}$ 

77. 
$$\log_2 256 + \log_2 64 imes (\sqrt{9})^0$$

$$\circ = 8 + 6 \times 1$$

$$\circ = 14$$

78. 
$$5^2 imes 5^{(-1)} imes \sqrt{16} + \sqrt[3]{125}$$

$$\circ = 25 \times \frac{1}{5} \times 4 + 5$$

$$\circ = 20 + 5 = 25$$

79. 
$$(\sqrt{289} + \sqrt{100}) \times 2^{(-1)} - \sqrt[3]{216}$$

$$\circ = (17+10) \times \frac{1}{2} - 6$$
  
 $\circ = \frac{27}{2} - 6 = \frac{15}{2}$ 

$$\circ = \frac{27}{2} - 6 = \frac{15}{2}$$

80. 
$$\log_4 256 imes (\sqrt[3]{216})^0 + \log_4 32$$

$$\begin{array}{ll}
\circ &= 4 \times 1 + \frac{5}{2} \\
\circ &= \frac{13}{2}
\end{array}$$

$$\circ = \frac{13}{2}$$

81. 
$$(6^2)^{(-1)} imes\sqrt{324}+2^{(-2)}$$

$$\circ = \frac{1}{36} \times 18 + \frac{1}{4} 
\circ = \frac{1}{2} + \frac{1}{4} = \frac{3}{4}$$

$$\circ = \frac{1}{2} + \frac{1}{4} = \frac{3}{4}$$

82. 
$$(\sqrt{256} + \sqrt[3]{125}) imes 3^0 - \log_2 128$$

$$\circ = (16+5) \times 1-7$$

$$\circ = 21 - 7 = 14$$

83. 
$$(\log_2 128 + \log_2 32) \times \sqrt{4} - \log_2 64$$

$$\circ = (7+5) \times 2-6$$

$$\circ = 24 - 6 = 18$$

84. 
$$(4^2)^{(-1)} imes (\sqrt{36})^2 + \sqrt[3]{27}$$

$$\circ = \frac{1}{16} \times 36 + 3$$
  
 $\circ = \frac{9}{4} + 3 = \frac{21}{4}$ 

$$\circ = \frac{9}{4} + 3 = \frac{21}{4}$$

85. 
$$(\sqrt{196} \div \sqrt{49}) \times 2^{(-1)} + \log_2 256$$

$$\circ = (14 \div 7) \times \frac{1}{2} + 8$$
  
 $\circ = 1 + 8 = 9$ 

86. 
$$\log_3 243 + \log_3 81 - (\sqrt[3]{64})^2$$

$$\circ \ = 5+4-16$$

$$\circ = -7$$

87. 
$$(2^6)^{(-1)} imes (\sqrt{256})^2 imes 2^0$$

$$\begin{array}{ll} \circ &= \frac{1}{64} \times 256 \times 1 \\ \circ &= 4 \end{array}$$

88. 
$$(\sqrt[3]{125} imes \sqrt[3]{216}) imes 5^{(-1)} + \sqrt{9}$$

$$\circ = (5 \times 6) \times \frac{1}{5} + 3$$

$$\circ = 6 + 3 = 9$$

89. 
$$\log_2 256 - \log_2 32 + (\sqrt{25})^0$$

$$\circ = 8 - 5 + 1$$

$$\circ = 4$$

90. 
$$(4^{(-2)} \times \sqrt{324}) \div 3^0 + \sqrt[3]{8}$$

$$\circ = (\frac{1}{16} \times 18) \div 1 + 2$$
  
 $\circ = \frac{9}{8} + 2 = \frac{25}{8}$ 

$$\circ = \frac{9}{8} + 2 = \frac{25}{8}$$

91. 
$$(\sqrt{225} + \sqrt[3]{343}) imes 2^{(-1)} - \log_3 81$$

$$\circ = (15+7) \times \frac{1}{2} - 4$$

$$\circ = 11 - 4 = 7$$

92. 
$$\log_5 125 imes (\sqrt[3]{27})^0 + \log_5 125$$

$$\circ = 3 \times 1 + 3$$

$$\circ = 6$$

93. 
$$(\sqrt{144} + \sqrt{100}) imes 2^{(-2)} imes \sqrt[3]{27}$$

$$\circ = (12+10) imes rac{1}{4} imes 3$$
  $\circ = rac{22}{4} imes 3 = rac{66}{4}$ 

$$\circ = \frac{22}{4} \times 3 = \frac{66}{4}$$

94. 
$$(\sqrt[3]{216} imes \sqrt[3]{125}) \div 6^2 + \sqrt{16}$$

$$\circ = (6 \times 5) \div 36 + 4$$

$$\circ = (6 \times 5) \div 36 + 4$$
  
 $\circ = \frac{30}{36} + 4 = \frac{174}{36}$ 

95. 
$$\log_2 128 + \log_2 16 \times (\sqrt{49})^0$$

$$\circ = 7 + 4 \times 1$$

- 96.  $3^3 \times 3^{(-2)} \times \sqrt{25} + \sqrt[3]{64}$ 
  - $\circ = 27 imes rac{1}{9} imes 5 + 4$
  - $\circ = 15 + 4 = 19$
- 97.  $(\sqrt{324} + \sqrt{81}) \times 2^{(-1)} \sqrt[3]{216}$ 
  - $\circ = (18+9) imes rac{1}{2} 6$   $\circ = rac{27}{2} 6 = rac{15}{2}$
- 98.  $\log_4 256 imes (\sqrt[3]{125})^0 + \log_4 16$ 
  - $\circ \ = 4 \times 1 + 2$
  - $\circ = 6$
- 99.  $(5^2)^{(-1)} imes \sqrt{400} + 2^{(-3)}$ 

  - $\begin{array}{ll} \circ &= \frac{1}{25} \times 20 + \frac{1}{8} \\ \circ &= \frac{4}{5} + \frac{1}{8} = \frac{39}{40} \end{array}$
- 100.  $(\sqrt{196} + \sqrt[3]{343}) imes 2^0 \log_2 256$ 
  - $\circ = (14+7) \times 1 8$
  - $\circ = 21 8 = 13$