



◇ 「콘텐츠산업 진흥법 시행령」 제33조에 의한 표시
1) 제작연월일 : 2016-01-12
2) 제작자 : 교육지대(주)
3) 이 콘텐츠는 「콘텐츠산업 진흥법」에 따라 최초 제작일부터 5년간 보호됩니다.

◇ 「콘텐츠산업 진흥법」 외에도 「저작권법」에 의하여 보호되는 콘텐츠의 경우, 그 콘텐츠의 전부 또는 일부를 무단으로 복제하거나 전송하는 것은 콘텐츠산업 진흥법 외에도 저작권법에 의한 법적 책임을 질 수 있습니다.

계산시 참고사항

1. 제곱근의 곱셈

(1) $a > 0, b > 0$ 이고 m, n 은 유리수일 때

$$\textcircled{1} \sqrt{a} \sqrt{b} = \sqrt{ab} \quad \textcircled{2} m \times n \sqrt{a} = mn \sqrt{a} \quad \textcircled{3} m \sqrt{a} \times n \sqrt{b} = mn \sqrt{ab}$$

2. 제곱근의 나눗셈

(1) $a > 0, b > 0, c > 0, d > 0$ 이고 m, n 이 유리수일 때

$$\textcircled{1} \frac{\sqrt{a}}{\sqrt{b}} = \sqrt{\frac{a}{b}} \\ \textcircled{2} m \sqrt{a} \div n \sqrt{b} = m \sqrt{a} \times \frac{1}{n \sqrt{b}} = \frac{m}{n} \sqrt{\frac{a}{b}} \\ \textcircled{3} \frac{\sqrt{a}}{\sqrt{b}} \div \frac{\sqrt{c}}{\sqrt{d}} = \frac{\sqrt{a}}{\sqrt{b}} \times \frac{\sqrt{d}}{\sqrt{c}} = \sqrt{\frac{a}{b} \times \frac{d}{c}} = \sqrt{\frac{ad}{bc}}$$

3. 제곱근의 곱셈과 나눗셈의 혼합 계산

- (1) 앞에서부터 차례대로 계산한다.
- (2) 나눗셈을 역수의 곱셈으로 고친다.
- (3) 근호 안을 가장 작은 자연수로 만든다.

제곱근의 곱셈을 계산 시

- 근호 안의 수끼리, 근호 밖의 수끼리 곱한다.

제곱근의 나눗셈을 계산 시

- 나눗셈 역수의 곱셈으로 고쳐서 계산한다.
- 근호 안의 수끼리, 근호 밖의 수끼리 계산한다.



제곱근의 곱셈

■ 다음 주어진 제곱근의 곱셈을 계산하여라.

1. $\sqrt{7} \times \sqrt{14}$

2. $4\sqrt{2} \times \sqrt{6}$

3. $\sqrt{\frac{5}{7}} \times \sqrt{\frac{14}{5}}$

4. $\sqrt{\frac{8}{15}} \times \sqrt{\frac{45}{4}}$

5. $\sqrt{3} \times \sqrt{5}$

6. $\sqrt{7} \times \sqrt{3}$

7. $\sqrt{2} \times \sqrt{11}$

8. $\sqrt{15} \sqrt{\frac{2}{5}}$

9. $2\sqrt{3} \times (-4\sqrt{2})$

10. $5\sqrt{2} \times 4\sqrt{7}$

11. $(-3\sqrt{2}) \times (-2\sqrt{5})$

12. $2\sqrt{0.2} \times 4\sqrt{5}$

13. $10\sqrt{0.4} \times 2\sqrt{0.1}$

14. $3\sqrt{8} \times 2\sqrt{2}$

15. $\sqrt{\frac{7}{3}} \times \sqrt{\frac{3}{14}}$

16. $2\sqrt{\frac{8}{3}} \times \sqrt{\frac{3}{4}}$

17. $2\sqrt{\frac{7}{4}} \times 5\sqrt{\frac{8}{35}}$

18. $3\sqrt{15} \times 2\sqrt{\frac{3}{5}}$

19. $3 \times 2\sqrt{5}$

20. $\sqrt{3} \times \sqrt{7}$

21. $(-\sqrt{2}) \times (-\sqrt{32})$

22. $(-\sqrt{3}) \times \sqrt{10}$

23. $\sqrt{0.15} \times \sqrt{0.6}$

24. $3\sqrt{2} \times 2\sqrt{5}$

25. $-2\sqrt{3} \times 5\sqrt{2}$

26. $2\sqrt{5} \times 5\sqrt{3}$

27. $\sqrt{10} \times \sqrt{\frac{7}{5}}$

28. $\sqrt{\frac{4}{5}} \times \sqrt{\frac{25}{4}}$

29. $\sqrt{\frac{21}{5}} \times \sqrt{\frac{10}{7}}$

30. $-\sqrt{\frac{3}{7}} \times \sqrt{21}$

31. $-\sqrt{2} \times \sqrt{3} \times \sqrt{6}$

32. $\sqrt{5} \times \sqrt{\frac{5}{3}} \times \sqrt{\frac{21}{10}}$

33. $-3\sqrt{3} \times \frac{2}{15}$

34. $2\sqrt{6} \times \sqrt{5}$

35. $\sqrt{\frac{10}{3}} \times 5\sqrt{\frac{3}{5}}$

36. $2\sqrt{\frac{9}{7}} \times 3\sqrt{\frac{14}{3}}$

37. $\sqrt{8} \times \sqrt{\frac{5}{4}}$

38. $3\sqrt{6} \times 2\sqrt{\frac{5}{3}}$



제곱근의 나눗셈

▣ 다음 주어진 제곱근의 나눗셈을 계산하여라.

39. $4\sqrt{6} \div 2\sqrt{3}$

40. $\sqrt{11} \div \sqrt{\frac{11}{3}}$

41. $6\sqrt{15} \div 2\sqrt{5}$

42. $12\sqrt{40} \div 4\sqrt{8}$

43. $\frac{\sqrt{6}}{\sqrt{5}} \div \frac{\sqrt{2}}{\sqrt{15}}$

44. $\sqrt{42} \div \sqrt{6}$

45. $\sqrt{72} \div (-\sqrt{2})$

46. $(-\sqrt{40}) \div (-\sqrt{8})$

47. $\sqrt{18} \div \sqrt{12}$

48. $5\sqrt{10} \div (-\sqrt{5})$

49. $9\sqrt{10} \div 3\sqrt{5}$

50. $3\sqrt{15} \div \sqrt{3}$

51. $10\sqrt{30} \div 2\sqrt{5}$

52. $2\sqrt{75} \div \sqrt{3}$

53. $(-8\sqrt{90}) \div (-2\sqrt{15})$

54. $\sqrt{35} \div \sqrt{\frac{7}{5}}$

55. $2\sqrt{3} \div \sqrt{\frac{3}{10}}$

56. $7\sqrt{\frac{1}{3}} \div \sqrt{\frac{1}{6}}$

57. $\frac{\sqrt{80}}{\sqrt{5}}$

58. $\sqrt{3} \div \sqrt{\frac{18}{5}}$

59. $\sqrt{\frac{28}{3}} \div \sqrt{\frac{14}{15}}$

60. $\frac{\sqrt{8}}{\sqrt{4}}$

61. $\frac{\sqrt{15}}{\sqrt{3}}$

62. $\frac{\sqrt{30}}{\sqrt{5}}$

63. $\sqrt{\frac{10}{7}} \div \sqrt{\frac{5}{14}}$



제곱근의 곱셈과 나눗셈의 혼합계산

■ 다음을 계산하여라.

64. $10\sqrt{48} \div 5\sqrt{3}$

65. $3\sqrt{10} \div \sqrt{5}$

66. $-9\sqrt{28} \div 3\sqrt{7}$

67. $6\sqrt{2} \div 3\sqrt{5}$

68. $12\sqrt{3} \div 3\sqrt{\frac{3}{5}}$

69. $4\sqrt{\frac{15}{2}} \div 2\sqrt{\frac{5}{6}}$

70. $\sqrt{60} \div \sqrt{6} \div \sqrt{5}$

71. $\sqrt{48} \div \sqrt{6} \div \sqrt{\frac{1}{3}}$

72. $\frac{3}{\sqrt{20}} \div \frac{\sqrt{3}}{4} \div \frac{\sqrt{5}}{\sqrt{2}}$

73. $\sqrt{2} \div \sqrt{\frac{2}{5}}$

74. $\frac{\sqrt{14}}{\sqrt{5}} \div \frac{\sqrt{7}}{\sqrt{10}}$

75. $\frac{\sqrt{3}}{\sqrt{5}} \div \frac{\sqrt{3}}{\sqrt{10}}$

76. $\frac{\sqrt{21}}{3} \div \sqrt{7} \div \frac{2}{\sqrt{3}}$

77. $2\sqrt{3} \div 3\sqrt{5} \times \sqrt{2}$

78. $5\sqrt{3} \times 2\sqrt{10} \div \sqrt{15}$

79. $\sqrt{6} \times \sqrt{2} \div \sqrt{3}$

80. $\sqrt{6} \times \sqrt{5} \div \sqrt{2}$

81. $\sqrt{3} \div 3\sqrt{3} \times 3\sqrt{2}$

82. $\sqrt{10} \div \sqrt{5} \times \sqrt{3}$

83. $2\sqrt{2} \div \sqrt{3} \times 2\sqrt{3}$

84. $\sqrt{15} \times 4\sqrt{2} \div 2\sqrt{3}$

85. $4\sqrt{5} \div \sqrt{2} \times \sqrt{10}$

86. $\sqrt{3} \times \sqrt{2} \div \sqrt{5}$

87. $\sqrt{\frac{3}{4}} \div \sqrt{\frac{8}{9}} \times \sqrt{\frac{16}{27}}$

88. $\frac{\sqrt{48}}{3} \times \sqrt{\frac{1}{6}} \div \frac{\sqrt{2}}{\sqrt{3}}$

89. $3\sqrt{2} \times \sqrt{5} \div 2\sqrt{3}$

90. $4\sqrt{3} \div 2\sqrt{5} \times \sqrt{15}$

91. $6\sqrt{2} \times \sqrt{5} \div 3\sqrt{3}$

92. $\sqrt{2} \times \sqrt{21} \div \sqrt{7}$

93. $\sqrt{30} \div \sqrt{5} \times \sqrt{24}$

94. $\sqrt{18} \times \sqrt{5} \div \sqrt{15}$

95. $\sqrt{45} \div \sqrt{12} \times \sqrt{3}$

96. $2\sqrt{3} \times 3\sqrt{5} \div 3\sqrt{3}$

97. $\sqrt{15} \times 6\sqrt{2} \div 3\sqrt{5}$

98. $\sqrt{45} \div \sqrt{5} \times \sqrt{12}$

99. $\sqrt{50} \times \sqrt{24} \div \sqrt{3}$

100. $\sqrt{48} \times \sqrt{20} \div \sqrt{6}$

101. $\sqrt{27} \div \sqrt{60} \times \sqrt{8}$

102. $\sqrt{6} \times \sqrt{3} \div \sqrt{12}$

103. $\sqrt{10} \div 3\sqrt{5} \times 6\sqrt{2}$

104. $\sqrt{\frac{6}{5}} \times \sqrt{\frac{10}{3}} \div \sqrt{2}$

105. $\frac{7}{\sqrt{10}} \div \frac{\sqrt{7}}{\sqrt{15}} \times \frac{1}{\sqrt{6}}$

106. $\sqrt{12} \div \sqrt{6} \times \sqrt{27}$

107. $\sqrt{48} \times \sqrt{18} \div \sqrt{108}$

108. $\frac{\sqrt{75}}{2} \div (-10\sqrt{2}) \times \sqrt{32}$

109. $\frac{\sqrt{48}}{\sqrt{5}} \div \frac{8}{\sqrt{20}} \times \frac{\sqrt{10}}{\sqrt{3}}$

110. $3\sqrt{3} \times 4\sqrt{5} \div 2\sqrt{6}$

111. $\sqrt{75} \times \frac{1}{\sqrt{3}} \div 5$

112. $-\frac{\sqrt{2}}{\sqrt{3}} \div \sqrt{\frac{9}{10}} \times \sqrt{\frac{3}{5}}$

113. $\frac{4}{\sqrt{10}} \times \sqrt{30} \div \sqrt{12}$

114. $3\sqrt{6} \times 4\sqrt{2} \div 2\sqrt{3}$

115. $\sqrt{27} \div 6\sqrt{3} \times 3\sqrt{2} \div \sqrt{\frac{8}{5}}$

정답 및 해설



1) $7\sqrt{2}$

$\Rightarrow \sqrt{7} \times \sqrt{14} = \sqrt{7^2 \times 2} = 7\sqrt{2}$

2) $8\sqrt{3}$

$\Rightarrow 4\sqrt{2} \times \sqrt{6} = 4\sqrt{2^2 \times 3} = 4 \times 2\sqrt{3} = 8\sqrt{3}$

3) $\sqrt{2}$

$\Rightarrow \sqrt{\frac{5}{7}} \times \sqrt{\frac{14}{5}} = \sqrt{\frac{5 \times 14}{7 \times 5}} = \sqrt{2}$

4) $\sqrt{6}$

$\Rightarrow \sqrt{\frac{8}{15}} \times \sqrt{\frac{45}{4}} = \sqrt{\frac{8 \times 45}{15 \times 4}} = \sqrt{6}$

5) $\sqrt{15}$

6) $\sqrt{21}$

7) $\sqrt{22}$

8) $\sqrt{6}$

$\Rightarrow \sqrt{15} \times \sqrt{\frac{2}{5}} = \sqrt{15 \times \frac{2}{5}} = \sqrt{6}$

9) $-8\sqrt{6}$

$\Rightarrow 2\sqrt{3} \times (-4\sqrt{2}) = 2 \times (-4) \times \sqrt{3 \times 2} = -8\sqrt{6}$

10) $20\sqrt{14}$

$\Rightarrow 5\sqrt{2} \times 4\sqrt{7} = 5 \times 4 \times \sqrt{2 \times 7} = 20\sqrt{14}$

11) $6\sqrt{10}$

$\Rightarrow (-3\sqrt{2}) \times (-2\sqrt{5}) = (-3) \times (-2) \times \sqrt{2 \times 5} = 6\sqrt{10}$

12) 8

$\Rightarrow 2\sqrt{0.2} \times 4\sqrt{5} = 2 \times 4 \times \sqrt{0.2 \times 5} = 8$

13) 4

$$\begin{aligned} \Rightarrow 10\sqrt{0.4} \times 2\sqrt{0.1} &= 10 \times 2 \times \sqrt{0.4 \times 0.1} \\ &= 20 \times \sqrt{0.04} \\ &= 20 \times 0.2 = 4 \end{aligned}$$

14) 24

$\Rightarrow 3\sqrt{8} \times 2\sqrt{2} = (3 \times 2) \sqrt{8 \times 2} = 6\sqrt{16} = 6 \times 4 = 24$

15) $\frac{\sqrt{2}}{2}$

$\Rightarrow \sqrt{\frac{7}{3}} \times \sqrt{\frac{3}{14}} = \sqrt{\frac{7}{3} \times \frac{3}{14}} = \sqrt{\frac{1}{2}} = \frac{\sqrt{2}}{2}$

16) $2\sqrt{2}$

$\Rightarrow 2\sqrt{\frac{8}{3}} \times \sqrt{\frac{3}{4}} = 2 \times \sqrt{\frac{8}{3} \times \frac{3}{4}} = 2\sqrt{2}$

17) $2\sqrt{10}$

$$\begin{aligned} \Rightarrow 2\sqrt{\frac{7}{4}} \times 5\sqrt{\frac{8}{35}} &= 2 \times 5 \times \sqrt{\frac{7}{4} \times \frac{8}{35}} = 10\sqrt{\frac{2}{5}} \\ &= 10 \times \frac{\sqrt{10}}{5} = 2\sqrt{10} \end{aligned}$$

18) 18

$\Rightarrow 3\sqrt{15} \times 2\sqrt{\frac{3}{5}} = 3 \times 2 \times \sqrt{15 \times \frac{3}{5}} = 6\sqrt{9} = 6 \times 3 = 18$

19) $6\sqrt{5}$

20) $\sqrt{21}$

$\Rightarrow \sqrt{3} \times \sqrt{7} = \sqrt{3 \times 7} = \sqrt{21}$

21) 8

$\Rightarrow (-\sqrt{2}) \times (-\sqrt{32}) = 2 \times 32 = \sqrt{64} = 8$

22) $-\sqrt{30}$

$\Rightarrow (-\sqrt{3}) \times \sqrt{10} = -\sqrt{3 \times 10} = -\sqrt{30}$

23) 0.3

$\Rightarrow \sqrt{0.15} \times \sqrt{0.6} = \sqrt{0.15 \times 0.6} = \sqrt{0.09} = 0.3$

24) $6\sqrt{10}$

25) $-10\sqrt{6}$

26) $10\sqrt{15}$

$\Rightarrow 2\sqrt{5} \times 5\sqrt{3} = (2 \times 5) \sqrt{5 \times 3} = 10\sqrt{15}$

27) $\sqrt{14}$

$\Rightarrow \sqrt{10} \times \sqrt{\frac{7}{5}} = \sqrt{10 \times \frac{7}{5}} = \sqrt{14}$

28) $\sqrt{5}$

$\Rightarrow \sqrt{\frac{4}{5}} \times \sqrt{\frac{25}{4}} = \sqrt{\frac{4}{5} \times \frac{25}{4}} = \sqrt{5}$

29) $\sqrt{6}$

$\Rightarrow \sqrt{\frac{21}{5}} \times \sqrt{\frac{10}{7}} = \sqrt{\frac{21}{5} \times \frac{10}{7}} = \sqrt{6}$

30) -3

$\Rightarrow -\sqrt{\frac{3}{7}} \times \sqrt{21} = -\sqrt{\frac{3}{7} \times 21} = -\sqrt{9} = -3$

31) -6

$$\begin{aligned} \Rightarrow -\sqrt{2} \times \sqrt{3} \times \sqrt{6} &= -\sqrt{2 \times 3 \times 6} \\ &= -\sqrt{2^2 \times 3^2} = -6 \end{aligned}$$

$$32) \frac{\sqrt{70}}{2}$$

$$\Rightarrow \sqrt{5} \times \sqrt{\frac{5}{3}} \times \sqrt{\frac{21}{10}} = \sqrt{\frac{5 \times 5 \times 21}{3 \times 10}} = \sqrt{\frac{35}{2}} = \frac{\sqrt{70}}{2}$$

$$33) -\frac{2}{5}\sqrt{3}$$

$$34) 2\sqrt{30}$$

$$35) 5\sqrt{2}$$

$$\Rightarrow \sqrt{\frac{10}{3}} \times 5\sqrt{\frac{3}{5}} = 5\sqrt{\frac{10}{3} \times \frac{3}{5}} = 5\sqrt{2}$$

$$36) 6\sqrt{6}$$

$$\Rightarrow 2\sqrt{\frac{9}{7}} \times 3\sqrt{\frac{14}{3}} = (2 \times 3)\sqrt{\frac{9}{7} \times \frac{14}{3}} = 6\sqrt{6}$$

$$37) \sqrt{10}$$

$$\Rightarrow \sqrt{8} \times \sqrt{\frac{5}{4}} = \sqrt{8 \times \frac{5}{4}} = \sqrt{10}$$

$$38) 6\sqrt{10}$$

$$\Rightarrow 3\sqrt{6} \times 2\sqrt{\frac{5}{3}} = (3 \times 2)\sqrt{6 \times \frac{5}{3}} = 6\sqrt{10}$$

$$39) 2\sqrt{2}$$

$$\Rightarrow 4\sqrt{6} \div 2\sqrt{3} = 4\sqrt{6} \times \frac{1}{2\sqrt{3}} = 2\sqrt{\frac{6}{3}} = 2\sqrt{2}$$

$$40) \sqrt{3}$$

$$\Rightarrow \sqrt{11} \div \sqrt{\frac{11}{3}} = \sqrt{11 \times \frac{3}{11}} = \sqrt{3}$$

$$41) 3\sqrt{3}$$

$$\Rightarrow 6\sqrt{15} \div 2\sqrt{5} = (6 \div 2)\sqrt{\frac{15}{5}} = 3\sqrt{3}$$

$$42) 3\sqrt{5}$$

$$\Rightarrow 12\sqrt{40} \div 4\sqrt{8} = 12\sqrt{40} \times \frac{1}{4\sqrt{8}} = 3\sqrt{\frac{40}{8}} = 3\sqrt{5}$$

$$43) 3$$

$$\Rightarrow \frac{\sqrt{6}}{\sqrt{5}} \div \frac{\sqrt{2}}{\sqrt{15}} = \sqrt{\frac{6}{5} \times \frac{15}{2}} = \sqrt{3^2} = 3$$

$$44) \sqrt{7}$$

$$\Rightarrow \sqrt{42} \div \sqrt{6} = \frac{\sqrt{42}}{\sqrt{6}} = \sqrt{\frac{42}{6}} = \sqrt{7}$$

$$45) -6$$

$$\Rightarrow \sqrt{72} \div (-\sqrt{2}) = -\frac{\sqrt{72}}{\sqrt{2}} = -\sqrt{\frac{72}{2}} = -\sqrt{36} = -6$$

$$46) \sqrt{5}$$

$$\Rightarrow (-\sqrt{40}) \div (-\sqrt{8}) = \frac{\sqrt{40}}{\sqrt{8}} = \sqrt{\frac{40}{8}} = \sqrt{5}$$

$$47) \frac{\sqrt{6}}{2}$$

$$\Rightarrow \sqrt{18} \div \sqrt{12} = \frac{\sqrt{18}}{\sqrt{12}} = \sqrt{\frac{18}{12}} = \sqrt{\frac{3}{2}} = \frac{\sqrt{6}}{2}$$

$$48) -5\sqrt{2}$$

$$\Rightarrow 5\sqrt{10} \div (-\sqrt{5}) = 5\sqrt{10} \times \left(-\frac{1}{\sqrt{5}}\right) = -5\sqrt{\frac{10}{5}} = -5\sqrt{2}$$

$$49) 3\sqrt{2}$$

$$\Rightarrow 9\sqrt{10} \div 3\sqrt{5} = \frac{9\sqrt{10}}{3\sqrt{5}} = 3\sqrt{2}$$

$$50) 3\sqrt{5}$$

$$\Rightarrow 3\sqrt{15} \div \sqrt{3} = \frac{3\sqrt{15}}{\sqrt{3}} = 3\sqrt{5}$$

$$51) 5\sqrt{6}$$

$$\Rightarrow 10\sqrt{30} \div 2\sqrt{5} = 10\sqrt{30} \times \frac{1}{2\sqrt{5}} = 5\sqrt{\frac{30}{5}} = 5\sqrt{6}$$

$$52) 10$$

$$\Rightarrow 2\sqrt{75} \div \sqrt{3} = 2\sqrt{75} \times \frac{1}{\sqrt{3}} = 2\sqrt{\frac{75}{3}} = 2\sqrt{25} = 10$$

$$53) 4\sqrt{6}$$

$$\Rightarrow (-8\sqrt{90}) \div (-2\sqrt{15}) = -8\sqrt{90} \times \left(-\frac{1}{2\sqrt{15}}\right)$$

$$= 4\sqrt{\frac{90}{15}} = 4\sqrt{6}$$

$$54) 5$$

$$\Rightarrow \sqrt{35} \div \sqrt{\frac{7}{5}} = \sqrt{35 \times \frac{5}{7}} = \sqrt{5^2} = 5$$

$$55) 2\sqrt{10}$$

$$\Rightarrow 2\sqrt{3} \div \sqrt{\frac{3}{10}} = 2\sqrt{3} \times \sqrt{\frac{10}{3}} = 2\sqrt{3 \times \frac{10}{3}} = 2\sqrt{10}$$

$$56) 7\sqrt{2}$$

$$\Rightarrow 7\sqrt{\frac{1}{3}} \div \sqrt{\frac{1}{6}} = 7\sqrt{\frac{1}{3}} \times \sqrt{6} = 7\sqrt{\frac{1}{3} \times 6} = 7\sqrt{2}$$

$$57) 4$$

$$\Rightarrow \frac{\sqrt{80}}{\sqrt{5}} = \sqrt{\frac{80}{5}} = \sqrt{16} = 4$$

$$58) \frac{\sqrt{30}}{6}$$

$$\Rightarrow \sqrt{3} \div \sqrt{\frac{18}{5}} = \sqrt{3} \times \sqrt{\frac{5}{18}} = \sqrt{3 \times \frac{5}{18}} = \sqrt{\frac{5}{6}} = \frac{\sqrt{30}}{6}$$

$$59) \sqrt{10}$$

$$\begin{aligned} \Rightarrow \sqrt{\frac{28}{3}} \div \sqrt{\frac{14}{15}} &= \sqrt{\frac{28}{3}} \times \sqrt{\frac{15}{14}} \\ &= \sqrt{\frac{28}{3} \times \frac{15}{14}} = \sqrt{10} \end{aligned}$$

$$60) \sqrt{2}$$

$$61) \sqrt{5}$$

$$62) \sqrt{6}$$

$$63) 2$$

$$\begin{aligned} \Rightarrow \sqrt{\frac{10}{7}} \div \sqrt{\frac{5}{14}} &= \sqrt{\frac{10}{7}} \times \sqrt{\frac{14}{5}} \\ &= \sqrt{\frac{10}{7} \times \frac{14}{5}} = \sqrt{4} = 2 \end{aligned}$$

$$64) 8$$

$$\Rightarrow 10\sqrt{48} \div 5\sqrt{3} = (10 \div 5) \sqrt{\frac{48}{3}} = 12\sqrt{16} = 8$$

$$65) 3\sqrt{2}$$

$$66) -6$$

$$\Rightarrow -9\sqrt{28} \div 3\sqrt{7} = (-9 \div 3) \sqrt{28 \div 7} = -3\sqrt{4} = -6$$

$$67) \frac{2\sqrt{10}}{5}$$

$$\Rightarrow 6\sqrt{2} \div 3\sqrt{5} = (6 \div 3) \sqrt{2 \div 5} = 2\sqrt{\frac{2}{5}} = \frac{2\sqrt{10}}{5}$$

$$68) 4\sqrt{5}$$

$$\Rightarrow 12\sqrt{3} \div 3\sqrt{\frac{3}{5}} = (12 \div 3) \sqrt{3 \div \frac{3}{5}} = 4\sqrt{3 \times \frac{5}{3}} = 4\sqrt{5}$$

$$69) 6$$

$$\begin{aligned} \Rightarrow 4\sqrt{\frac{15}{2}} \div 2\sqrt{\frac{5}{6}} &= (4 \div 2) \sqrt{\frac{15}{2} \div \frac{5}{6}} \\ &= (4 \div 2) \sqrt{\frac{15}{2} \times \frac{6}{5}} = 2\sqrt{9} = 6 \end{aligned}$$

$$70) \sqrt{2}$$

$$\Rightarrow \sqrt{60} \div \sqrt{6} \div \sqrt{5} = \sqrt{60 \times \frac{1}{6} \times \frac{1}{5}} = \sqrt{2}$$

$$71) 2\sqrt{6}$$

$$\Rightarrow \sqrt{48} \div \sqrt{6} \div \sqrt{\frac{1}{3}} = \sqrt{48 \times \frac{1}{6} \times 3} = \sqrt{24} = 2\sqrt{6}$$

$$72) \frac{2\sqrt{6}}{5}$$

$$\begin{aligned} \Rightarrow \frac{3}{\sqrt{20}} \div \frac{\sqrt{3}}{4} \div \frac{\sqrt{5}}{\sqrt{2}} &= \frac{3}{2\sqrt{5}} \times \frac{4}{\sqrt{3}} \times \frac{\sqrt{2}}{\sqrt{5}} \\ &= \frac{6\sqrt{2}}{5\sqrt{3}} = \frac{6\sqrt{6}}{15} = \frac{2\sqrt{6}}{5} \end{aligned}$$

$$73) \sqrt{5}$$

$$\Rightarrow \sqrt{2} \div \sqrt{\frac{2}{5}} = \sqrt{2 \div \frac{2}{5}} = \sqrt{2 \times \frac{5}{2}} = \sqrt{5}$$

$$74) 2$$

$$\begin{aligned} \Rightarrow \frac{\sqrt{14}}{\sqrt{5}} \div \frac{\sqrt{7}}{\sqrt{10}} &= \frac{\sqrt{14}}{\sqrt{5}} \times \frac{\sqrt{10}}{\sqrt{7}} \\ &= \sqrt{\frac{14}{5} \times \frac{10}{7}} = \sqrt{4} = 2 \end{aligned}$$

$$75) \sqrt{2}$$

$$\Rightarrow \frac{\sqrt{3}}{\sqrt{5}} \div \frac{\sqrt{3}}{\sqrt{10}} = \frac{\sqrt{3}}{\sqrt{5}} \times \frac{\sqrt{10}}{\sqrt{3}} = \sqrt{\frac{3}{5} \times \frac{10}{3}} = \sqrt{2}$$

$$76) \frac{1}{2}$$

$$\begin{aligned} \Rightarrow \frac{\sqrt{21}}{3} \div \sqrt{7} \div \frac{2}{\sqrt{3}} &= \frac{\sqrt{21}}{3} \times \frac{1}{\sqrt{7}} \times \frac{\sqrt{3}}{2} \\ &= \frac{(\sqrt{3})^2}{6} = \frac{3}{6} = \frac{1}{2} \end{aligned}$$

$$77) \frac{2\sqrt{30}}{15}$$

$$\begin{aligned} \Rightarrow 2\sqrt{3} \div 3\sqrt{5} \times \sqrt{2} &= (2 \div 3 \times 1) \sqrt{3 \div 5 \times 2} \\ &= \frac{2}{3} \sqrt{\frac{6}{5}} = \frac{2\sqrt{30}}{15} \end{aligned}$$

$$78) 10\sqrt{2}$$

$$\Rightarrow 5\sqrt{3} \times 2\sqrt{10} \div \sqrt{15} = (5 \times 2 \div 1) \sqrt{3 \times 10 \div 15} = 10\sqrt{2}$$

$$79) 2$$

$$\Rightarrow \sqrt{6} \times \sqrt{2} \div \sqrt{3} = \sqrt{12} \div \sqrt{3} = \frac{\sqrt{12}}{\sqrt{3}} = \sqrt{4} = 2$$

$$80) \sqrt{15}$$

$$\Rightarrow \sqrt{6} \times \sqrt{5} \div \sqrt{2} = \sqrt{\frac{6 \times 5}{2}} = \sqrt{15}$$

$$81) \sqrt{2}$$

$$\Rightarrow \sqrt{3} \div 3\sqrt{3} \times 3\sqrt{2} = (1 \div 3 \times 3) \sqrt{3 \div 3 \times 2} = \sqrt{2}$$

$$82) \sqrt{6}$$

$$\begin{aligned} \Rightarrow \sqrt{10} \div \sqrt{5} \times \sqrt{3} &= \sqrt{10} \times \frac{1}{\sqrt{5}} \times \sqrt{3} \\ &= \sqrt{10 \times \frac{1}{5} \times 3} = \sqrt{6} \end{aligned}$$

83) $4\sqrt{2}$

$$\Rightarrow 2\sqrt{2} \div \sqrt{3} \times 2\sqrt{3} = 2\sqrt{2} \times \frac{1}{\sqrt{3}} \times 2\sqrt{3}$$

$$= 4\sqrt{2 \times \frac{1}{3} \times 3} = 4\sqrt{2}$$

84) $2\sqrt{10}$

$$\Rightarrow \sqrt{15} \times 4\sqrt{2} \div 2\sqrt{3} = (1 \times 4 \div 2) \sqrt{15 \times 2 \div 3} = 2\sqrt{10}$$

85) 20

$$\Rightarrow 4\sqrt{5} \div \sqrt{2} \times \sqrt{10} = \frac{4\sqrt{5}}{\sqrt{2}} \times \sqrt{10}$$

$$= \frac{4\sqrt{50}}{\sqrt{2}} = 4 \times 5 = 20$$

86) $\frac{\sqrt{30}}{5}$

$$\Rightarrow \sqrt{3} \times \sqrt{2} \div \sqrt{5} = \sqrt{3} \times \sqrt{2} \times \frac{1}{\sqrt{5}} = \sqrt{3 \times 2 \times \frac{1}{5}}$$

$$= \sqrt{\frac{6}{5}} = \frac{\sqrt{30}}{5}$$

87) $\frac{\sqrt{2}}{2}$

$$\Rightarrow \sqrt{\frac{3}{4}} \div \sqrt{\frac{8}{9}} \times \sqrt{\frac{16}{27}} = \sqrt{\frac{3 \times 9 \times 16}{4 \times 8 \times 27}} = \sqrt{\frac{1}{2}} = \frac{\sqrt{2}}{2}$$

88) $\frac{2\sqrt{3}}{3}$

$$\Rightarrow \frac{\sqrt{48}}{3} \times \sqrt{\frac{1}{6}} \div \frac{\sqrt{2}}{\sqrt{3}} = \frac{1}{3} \sqrt{\frac{48 \times 3}{6 \times 2}} = \frac{\sqrt{12}}{3} = \frac{2\sqrt{3}}{3}$$

89) $\frac{\sqrt{30}}{2}$

$$\Rightarrow 3\sqrt{2} \times \sqrt{5} \div 2\sqrt{3} = 3\sqrt{2} \times \sqrt{5} \times \frac{1}{2\sqrt{3}}$$

$$= \frac{3}{2} \sqrt{2 \times 5 \times \frac{1}{3}} = \frac{3}{2} \sqrt{\frac{10}{3}} = \frac{\sqrt{30}}{2}$$

90) 6

$$\Rightarrow 4\sqrt{3} \div 2\sqrt{5} \times \sqrt{15} = 4\sqrt{3} \times \frac{1}{2\sqrt{5}} \times \sqrt{15}$$

$$= 2\sqrt{3 \times \frac{1}{5} \times 15} = 2\sqrt{9} = 6$$

91) $\frac{2\sqrt{30}}{3}$

$$\Rightarrow 6\sqrt{2} \times \sqrt{5} \div 3\sqrt{3} = 6\sqrt{2} \times \sqrt{5} \times \frac{1}{3\sqrt{3}}$$

$$= 2\sqrt{2 \times 5 \times \frac{1}{3}} = 2\sqrt{\frac{10}{3}} = \frac{2\sqrt{30}}{3}$$

92) $\sqrt{6}$

$$\Rightarrow \sqrt{2} \times \sqrt{21} \div \sqrt{7} = \sqrt{2} \times \sqrt{21} \times \frac{1}{\sqrt{7}}$$

$$= \sqrt{2 \times 21 \times \frac{1}{7}} = \sqrt{6}$$

93) 12

$$\Rightarrow \sqrt{30} \div \sqrt{5} \times \sqrt{24} = \sqrt{30} \div \sqrt{5} \times 2\sqrt{6}$$

$$= \sqrt{30} \times \frac{1}{\sqrt{5}} \times 2\sqrt{6} = 2\sqrt{30 \times \frac{1}{5} \times 6} = 12$$

94) $\sqrt{6}$

$$\Rightarrow \sqrt{18} \times \sqrt{5} \div \sqrt{15} = 3\sqrt{2} \times \sqrt{5} \div \sqrt{15}$$

$$= 3\sqrt{2 \times 5 \times \frac{1}{15}} = 3\sqrt{\frac{2}{3}} = \sqrt{6}$$

95) $\frac{3\sqrt{5}}{2}$

$$\Rightarrow \sqrt{45} \div \sqrt{12} \times \sqrt{3} = 3\sqrt{5} \div 2\sqrt{3} \times \sqrt{3}$$

$$= 3\sqrt{5} \times \frac{1}{2\sqrt{3}} \times \sqrt{3} = \frac{3}{2} \sqrt{5 \times \frac{1}{3} \times 3} = \frac{3\sqrt{5}}{2}$$

96) $2\sqrt{5}$

$$\Rightarrow 2\sqrt{3} \times 3\sqrt{5} \div 3\sqrt{3} = 2\sqrt{3} \times 3\sqrt{5} \times \frac{1}{3\sqrt{3}}$$

$$= 2\sqrt{3 \times 5 \times \frac{1}{3}} = 2\sqrt{5}$$

97) $2\sqrt{6}$

$$\Rightarrow \sqrt{15} \times 6\sqrt{2} \div 3\sqrt{5} = \sqrt{15} \times 6\sqrt{2} \times \frac{1}{3\sqrt{5}}$$

$$= 2\sqrt{15 \times 2 \times \frac{1}{5}} = 2\sqrt{6}$$

98) $6\sqrt{3}$

$$\Rightarrow \sqrt{45} \div \sqrt{5} \times \sqrt{12} = 3\sqrt{5} \times \frac{1}{\sqrt{5}} \times 2\sqrt{3}$$

$$= 6\sqrt{5 \times \frac{1}{5} \times 3} = 6\sqrt{3}$$

99) 20

$$\Rightarrow \sqrt{50} \times \sqrt{24} \div \sqrt{3} = 5\sqrt{2} \times 2\sqrt{6} \times \frac{1}{\sqrt{3}}$$

$$= 10\sqrt{2 \times 6 \times \frac{1}{3}} = 20$$

100) $4\sqrt{10}$

$$\Rightarrow \sqrt{48} \times \sqrt{20} \div \sqrt{6} = 4\sqrt{3} \times 2\sqrt{5} \times \frac{1}{\sqrt{6}}$$

$$= 8\sqrt{3 \times 5 \times \frac{1}{6}} = 8\sqrt{\frac{5}{2}} = 4\sqrt{10}$$

101) $\frac{3\sqrt{10}}{5}$

$$\begin{aligned}\Rightarrow \sqrt{27} \div \sqrt{60} \times \sqrt{8} &= 3\sqrt{3} \times \frac{1}{2\sqrt{15}} \times 2\sqrt{2} \\ &= 3\sqrt{3 \times \frac{1}{15} \times 2} = 3\sqrt{\frac{2}{5}} = \frac{3\sqrt{10}}{5}\end{aligned}$$

$$102) \frac{\sqrt{6}}{2}$$

$$\Rightarrow \sqrt{6} \times \sqrt{3} \div \sqrt{12} = \sqrt{6} \times \sqrt{3} \times \frac{1}{2\sqrt{3}} = \frac{\sqrt{6}}{2}$$

$$103) 4$$

$$\Rightarrow \sqrt{10} \div 3\sqrt{5} \times 6\sqrt{2} = \sqrt{10} \times \frac{1}{3\sqrt{5}} \times 6\sqrt{2} = 4$$

$$104) \sqrt{2}$$

$$\Rightarrow \sqrt{\frac{6}{5}} \times \sqrt{\frac{10}{3}} \div \sqrt{2} = \frac{\sqrt{6}}{\sqrt{5}} \times \frac{\sqrt{10}}{\sqrt{3}} \times \frac{1}{\sqrt{2}} = \sqrt{2}$$

$$105) \frac{\sqrt{7}}{2}$$

$$\Rightarrow \frac{7}{\sqrt{10}} \div \frac{\sqrt{7}}{\sqrt{15}} \times \frac{1}{\sqrt{6}} = \frac{7}{\sqrt{10}} \times \frac{\sqrt{15}}{\sqrt{7}} \times \frac{1}{\sqrt{6}} = \frac{\sqrt{7}}{2}$$

$$106) 3\sqrt{6}$$

$$\begin{aligned}\Rightarrow \sqrt{12} \div \sqrt{6} \times \sqrt{27} &= 2\sqrt{3} \times \frac{1}{\sqrt{6}} \times 3\sqrt{3} \\ &= \frac{6\sqrt{3}}{\sqrt{2}} = 3\sqrt{6}\end{aligned}$$

$$107) 2\sqrt{2}$$

$$\Rightarrow \sqrt{48} \times \sqrt{18} \div \sqrt{108} = 4\sqrt{3} \times 3\sqrt{2} \times \frac{1}{6\sqrt{3}} = 2\sqrt{2}$$

$$108) -\sqrt{3}$$

$$\begin{aligned}\Rightarrow \frac{\sqrt{75}}{2} \div (-10\sqrt{2}) \times \sqrt{32} \\ = \frac{5\sqrt{3}}{2} \times \left(-\frac{1}{10\sqrt{2}}\right) \times 4\sqrt{2} = -\sqrt{3}\end{aligned}$$

$$109) \sqrt{10}$$

$$110) 3\sqrt{10}$$

$$111) 1$$

$$112) -\frac{2}{3}$$

$$113) 2$$

$$\Rightarrow (\text{주어진 식}) = 4 \times \sqrt{3} \times \frac{1}{\sqrt{12}} = 4 \times \frac{1}{2} = 2$$

$$114) 12$$

$$\Rightarrow 3\sqrt{6} \times 4\sqrt{2} \div 2\sqrt{3} = 12\sqrt{12} \times \frac{1}{2\sqrt{3}} = 6\sqrt{4} = 12$$

$$115) \frac{3\sqrt{5}}{4}$$