

ANSWER PRESENTATION TOOL

Algebra 2 - Student Edit

5

2 - Practice

1-51

ALL EVEN

Show Sol

ODD

$$1. (9^2)^{1/3} = 9^{2/3}$$

$$3. \frac{6}{6^{1/4}} = 6^{1 - (1/4)} = 6^{3/4}$$

$$\begin{aligned}
 5. \left(\frac{8^4}{10^4}\right)^{-1/4} &= \left[\left(\frac{8}{10}\right)^4\right]^{-1/4} \\
 &= \left(\frac{8}{10}\right)^{4 \cdot (-1/4)} \\
 &= \left(\frac{8}{10}\right)^{-1} \\
 &= \frac{10}{8} = \frac{5}{4}
 \end{aligned}$$

$$\begin{aligned}
 7. (3^{-2/3} \cdot 3^{1/3})^{-1} &= (3^{-2/3})^{-1} \cdot (3^{1/3})^{-1} \\
 &= 3^{2/3} \cdot 3^{-1/3} \\
 &= 3^{(2/3) + (-1/3)} \\
 &= 3^{1/3}
 \end{aligned}$$

OR

$$\begin{aligned}
 (3^{-2/3} \cdot 3^{1/3})^{-1} &= (3^{-2/3 + 1/3})^{-1} \\
 &= (3^{-1/3})^{-1} \\
 &= 3^{1/3}
 \end{aligned}$$

$$\begin{aligned}
 9. \frac{2^{2/3} \cdot 16^{2/3}}{4^{2/3}} &= \left(\frac{2 \cdot 16}{4} \right)^{2/3} \\
 &= 8^{2/3} = (8^{1/3})^2 = (2)^2 = 4
 \end{aligned}$$

$$\begin{aligned}
 11. \sqrt{2} \cdot \sqrt{72} &= \sqrt{2 \cdot 72} \\
 &= \sqrt{144} \\
 &= 12
 \end{aligned}$$

$$13. \sqrt[4]{5} \cdot \sqrt[4]{125} = \sqrt[4]{5 \cdot 125} = \sqrt[4]{625} = 5$$

$$\begin{aligned}
 15. \frac{\sqrt[5]{486}}{\sqrt[5]{2}} &= \sqrt[5]{\frac{486}{2}} \\
 &= \sqrt[5]{243} = 3
 \end{aligned}$$

$$\begin{aligned}
 17. \frac{\sqrt[3]{6} \cdot \sqrt[3]{72}}{\sqrt[3]{2}} &= \sqrt[3]{\frac{6 \cdot 72}{2}} \\
 &= \sqrt[3]{216} = 6
 \end{aligned}$$

$$\begin{aligned}
 19. \sqrt[4]{567} &= \sqrt[4]{81 \cdot 7} \\
 &= \sqrt[4]{81} \sqrt[4]{7} \\
 &= 3\sqrt[4]{7}
 \end{aligned}$$

$$\begin{aligned} 21. \frac{\sqrt[3]{5}}{\sqrt[3]{4}} &= \frac{\sqrt[3]{5}}{\sqrt[3]{4}} \cdot \frac{\sqrt[3]{2}}{\sqrt[3]{2}} \\ &= \frac{\sqrt[3]{10}}{\sqrt[3]{8}} \\ &= \frac{\sqrt[3]{10}}{2} \end{aligned}$$

$$\begin{aligned} 23. \sqrt{\frac{3}{8}} &= \frac{\sqrt{3}}{\sqrt{8}} \cdot \frac{\sqrt{2}}{\sqrt{2}} \\ &= \frac{\sqrt{6}}{\sqrt{16}} \\ &= \frac{\sqrt{6}}{4} \end{aligned}$$

$$\begin{aligned} 25. \sqrt[3]{\frac{64}{49}} &= \frac{\sqrt[3]{64}}{\sqrt[3]{49}} \cdot \frac{\sqrt[3]{7}}{\sqrt[3]{7}} \\ &= \frac{4\sqrt[3]{7}}{\sqrt[3]{343}} \\ &= \frac{4\sqrt[3]{7}}{7} \end{aligned}$$

$$\begin{aligned}
 27. \frac{1}{1 + \sqrt{3}} &= \frac{1}{1 + \sqrt{3}} \cdot \frac{1 - \sqrt{3}}{1 - \sqrt{3}} \\
 &= \frac{1(1 - \sqrt{3})}{1^2 - (\sqrt{3})^2} \\
 &= \frac{1 - \sqrt{3}}{1 - 3} \\
 &= \frac{1 - \sqrt{3}}{-2}
 \end{aligned}$$

$$\begin{aligned}
 29. \frac{5}{3 - \sqrt{2}} &= \frac{5}{3 - \sqrt{2}} \cdot \frac{3 + \sqrt{2}}{3 + \sqrt{2}} \\
 &= \frac{5(3 + \sqrt{2})}{3^2 - (\sqrt{2})^2} \\
 &= \frac{15 + 5\sqrt{2}}{9 - 2} \\
 &= \frac{15 + 5\sqrt{2}}{7}
 \end{aligned}$$

$$\begin{aligned}
 31. \frac{9}{\sqrt{3} + \sqrt{7}} &= \frac{9}{\sqrt{3} + \sqrt{7}} \cdot \frac{\sqrt{3} - \sqrt{7}}{\sqrt{3} - \sqrt{7}} \\
 &= \frac{9(\sqrt{3} - \sqrt{7})}{(\sqrt{3})^2 - (\sqrt{7})^2} \\
 &= \frac{9\sqrt{3} - 9\sqrt{7}}{3 - 7} \\
 &= \frac{9\sqrt{3} - 9\sqrt{7}}{-4}
 \end{aligned}$$

$$\begin{aligned}
 33. \quad \frac{\sqrt{6}}{\sqrt{3} - \sqrt{5}} &= \frac{\sqrt{6}}{\sqrt{3} - \sqrt{5}} \cdot \frac{\sqrt{3} + \sqrt{5}}{\sqrt{3} + \sqrt{5}} \\
 &= \frac{\sqrt{6}(\sqrt{3} + \sqrt{5})}{(\sqrt{3})^2 - (\sqrt{5})^2} \\
 &= \frac{\sqrt{18} + \sqrt{30}}{3 - 5} \\
 &= \frac{\sqrt{18} + \sqrt{30}}{-2} \\
 &= \frac{3\sqrt{2} + \sqrt{30}}{-2}
 \end{aligned}$$

$$\begin{aligned}
 35. \quad 9\sqrt[3]{11} + 3\sqrt[3]{11} &= (9 + 3)\sqrt[3]{11} \\
 &= 12\sqrt[3]{11}
 \end{aligned}$$

$$\begin{aligned}
 37. \quad 3(14^{1/4}) + 9(14^{1/4}) &= (3 + 9)(14^{1/4}) \\
 &= 12(14^{1/4})
 \end{aligned}$$

$$\begin{aligned}
 39. \quad 5\sqrt{12} - 19\sqrt{3} &= 5\sqrt{4 \cdot 3} - 19\sqrt{3} \\
 &= 5\sqrt{4}\sqrt{3} - 19\sqrt{3} \\
 &= 10\sqrt{3} - 19\sqrt{3} \\
 &= (10 - 19)\sqrt{3} \\
 &= -9\sqrt{3}
 \end{aligned}$$

$$\begin{aligned}
 41. \quad \sqrt[5]{224} + 3\sqrt[5]{7} &= \sqrt[5]{7 \cdot 32} + 3\sqrt[5]{7} \\
 &= \sqrt[5]{32} \cdot \sqrt[5]{7} + 3\sqrt[5]{7} \\
 &= 2\sqrt[5]{7} + 3\sqrt[5]{7} \\
 &= (2 + 3)\sqrt[5]{7} \\
 &= 5\sqrt[5]{7}
 \end{aligned}$$

$$\begin{aligned}
 43. \quad 5(24^{1/3}) - 4(3^{1/3}) &= 5[(8 \cdot 3)^{1/3}] - 4(3^{1/3}) \\
 &= 5(8^{1/3} \cdot 3^{1/3}) - 4(3^{1/3}) \\
 &= 5 \cdot 2(3^{1/3}) - 4(3^{1/3}) \\
 &= (10 - 4)(3^{1/3}) \\
 &= 6(3^{1/3})
 \end{aligned}$$

$$\begin{aligned}
 45. \quad \sqrt[4]{81y^8} &= \sqrt[4]{3^4 \cdot (y^2)^4} \\
 &= \sqrt[4]{3^4} \cdot \sqrt[4]{(y^2)^4} \\
 &= 3y^2
 \end{aligned}$$

$$\begin{aligned}
 47. \quad \sqrt[5]{\frac{m^{10}}{n^5}} &= \sqrt[5]{\frac{(m^2)^5}{n^5}} \\
 &= \frac{\sqrt[5]{(m^2)^5}}{\sqrt[5]{n^5}} \\
 &= \frac{m^2}{n}
 \end{aligned}$$

$$\begin{aligned}
 49. \quad \sqrt[6]{\frac{g^6h}{h^7}} &= \sqrt[6]{g^6 \cdot \frac{h}{h^7}} \\
 &= \sqrt[6]{\frac{g^6}{h^6}} \\
 &= \sqrt[6]{\left(\frac{g}{h}\right)^6} \\
 &= \left| \frac{g}{h} \right|
 \end{aligned}$$

51. The radicand should not change when the expression is factored.

$$3\sqrt[3]{12} + 5\sqrt[3]{12} = (3 + 5)\sqrt[3]{12} = 8\sqrt[3]{12}$$

