

NOTE: IF YOU HAVE A RADICAL WITH AN ODD INDEX WITH A NEGATIVE NUMBER INSIDE, YOU CAN TAKE IT OUT IN FRONT

$$\sqrt[3]{-2} = -\sqrt[3]{2}$$

NOTE: IF YOU HAVE A RADICAL WITH AN EVEN INDEX WITH A NEGATIVE NUMBER INSIDE, THE ANSWER IS "NOT A REAL NUMBER"

$$\sqrt{-3} = \text{NOT A REAL NUMBER}$$

$$\begin{aligned} & \textcircled{1} \sqrt[3]{-2} \sqrt[3]{13} \\ &= -\sqrt[3]{2} \cdot \sqrt[3]{13} \\ &= -\sqrt[3]{2 \cdot 13} \\ &= -\sqrt[3]{26} \end{aligned}$$

PROPERTY

$$\sqrt[p]{M} \cdot \sqrt[p]{N} = \sqrt[p]{M \cdot N}$$

$$\begin{aligned} \textcircled{2} \sqrt[5]{\frac{-12x^4}{3}} \cdot \sqrt[5]{\frac{3}{4x^2}} &= \sqrt[5]{\frac{-12x^4 \cdot 3}{3 \cdot 4x^2}} \\ &= \sqrt[5]{\frac{-4x^4 \cdot 3}{1 \cdot 4x^2}} \\ &= \sqrt[5]{\frac{-3x^4}{x^2}} \\ &= -\sqrt[5]{\frac{3x^4}{x^2}} \\ &= -\sqrt[5]{3x^2} \end{aligned}$$

$$\begin{aligned} \textcircled{3} \sqrt{48} &= \sqrt{2 \cdot 2 \cdot 2 \cdot 2 \cdot 3} \\ &= 2 \cdot 2 \sqrt{3} \\ &= 4\sqrt{3} \end{aligned}$$

$$\begin{aligned} \textcircled{4} \sqrt[4]{80} &= \sqrt[4]{2 \cdot 2 \cdot 2 \cdot 2 \cdot 5} \\ &= 2 \sqrt[4]{5} \end{aligned}$$

$$\begin{aligned} \textcircled{5} \sqrt{18a^4} &= \sqrt{2 \cdot 3 \cdot 3 \cdot 9 \cdot a \cdot a \cdot a \cdot a} \\ &= 3 \cdot a \cdot a \sqrt{2} \\ &= 3a^2 \sqrt{2} \end{aligned}$$

$$\begin{aligned} \textcircled{6} \sqrt[3]{-52p^6} &= -\sqrt[3]{2 \cdot 2 \cdot 13 \cdot p^6} \\ &= -p^2 \sqrt[3]{52} \end{aligned}$$

Power Index
 $6 \div 3 = 2 \text{ r } 0$
 OUT IN

NOTE: IF YOU HAVE AN EVEN INDEX AND YOU BRING OUT A VARIABLE MAKE SURE IT IS POSITIVE

$$\begin{aligned} \sqrt{16} &= \sqrt{4 \cdot 4} \\ &= 4 \end{aligned}$$

$$\begin{aligned} \sqrt{16} &= \sqrt{(-4)(-4)} \\ &= \cancel{-4} \end{aligned}$$

$$\begin{aligned} \textcircled{7} \sqrt{50m^2n^3} &= \sqrt{2 \cdot 5 \cdot 5 \cdot m^2 \cdot n^3} \\ &= 5mn \sqrt{2n} \end{aligned}$$

n's
 $2 \div 2 = 1 \text{ r } 0$
 OUT IN

n's
 $3 \div 2 = 1 \text{ r } 1$
 OUT IN

$$\begin{aligned} \textcircled{8} \sqrt{x^{13}} &= |x^6| \sqrt{x} \\ &= x^6 \sqrt{x} \end{aligned}$$

$13 \div 2 = 6 \text{ r } 1$
 OUT IN