

Dividing Radical Expressions

If $\sqrt[n]{a}$ and $\sqrt[n]{b}$ are real numbers, then

$$\frac{\sqrt[n]{a}}{\sqrt[n]{b}} = \sqrt[n]{\frac{a}{b}}$$

Ex: Divide. (assume that all variables represent positive numbers)

$$\frac{\sqrt[3]{-81}}{\sqrt[3]{3}}$$

$$\frac{\sqrt[3]{192x^8}}{\sqrt[3]{3x}}$$

Rationalizing the Denominator – rewrite the expression so there is no radical sign in the denominator

Ex: $\frac{\sqrt{3}}{\sqrt{5}}$

Ex: $\frac{\sqrt{x^5}}{\sqrt{3x^2y}}$

$$\text{Ex: } \frac{\sqrt[3]{5}}{\sqrt{4y}}$$

$$\text{Ex: } \frac{\sqrt[4]{5}}{\sqrt[4]{2}}$$

$$\text{Ex: } \frac{3+\sqrt{5}}{\sqrt{7}}$$

Rationalizing Binomial Radical Denominators

$$\frac{(2-\sqrt{3})}{(4+\sqrt{3})}$$

$$\frac{5+\sqrt{6}}{-2-\sqrt{7}}$$