7.4 – Dividing Radical Expressions

Note Title

We've already done $\sqrt{\frac{64}{81}}$ intuitively.

The Quotient Rule for Radicals For any real numbers $\sqrt[n]{a}$ and $\sqrt[n]{b}$, $b \neq 0$,

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

(1) Simplify

a) $\sqrt{\frac{144}{81}}$

b) $\sqrt[3]{\frac{125}{216}}$

c) $\sqrt{\frac{25x^5}{y^6}}$

d) $\sqrt[3]{\frac{8a^8}{27b^{14}}}$

e) $\frac{\sqrt{50}}{\sqrt{2}}$

f) $\frac{\sqrt[3]{81}}{\sqrt[3]{3}}$

g) $\frac{\sqrt{72xy}}{2\sqrt{2}}$

h) $\frac{\sqrt[5]{64a^{11}b^{28}}}{\sqrt[5]{2ab^{-2}}}$

Rationalizing the Denominator

How could we add $\sqrt{\frac{1}{3}}$ and $\frac{1}{3}$?

② Rationalize the denominator.

a) $\sqrt{\frac{5}{11}}$

b) $\frac{3}{\sqrt{7}}$

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

d) $\frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$