Simplify using Properties of Radicals

A radical expression is simplified when…

Example 1 Simplify using properties of radicals

Same index and exponent	$\sqrt[n]{a^n} =$	$\sqrt[5]{2^5} =$
Radical as a product	$\sqrt[n]{ab} =$	$\sqrt[3]{8x^3} =$

$\sqrt[3]{135}$ $\sqrt[3]{64y^6}$ $\sqrt[5]{243a^8b^{14}c^5}$

Example 2 Simplify using properties of radicals

Radical as a quotient	$\sqrt[n]{\frac{a}{b}} =$	$\sqrt[3]{\frac{27}{125}} =$

$\sqrt[5]{\frac{5}{32}}$ $\sqrt[4]{\frac{2m^4}{n^8}}$ $\frac{\sqrt[3]{250}}{\sqrt[3]{2}}$

Example 3 Rationalize the denominator

Rationalizing the denominator	$\frac{1}{\sqrt{a}} = \frac{1}{\sqrt{a}}\left(\frac{\sqrt{a}}{\sqrt{a}}\right) = \frac{\sqrt{a}}{\sqrt{a^2}} =$

$\frac{1}{\sqrt{7}}$ $\frac{2}{\sqrt{12}}$ $\sqrt{\frac{81}{10}}$