Simplify

1. $\dfrac{\sqrt{88a^3b^{11}c^5}}{\sqrt{12a^7b^4c^{11}}}$

$\sqrt{\dfrac{22\,b^7}{3a^4\,c^6}} = \dfrac{b^3\sqrt{22b}}{a^2c^3\sqrt{3}}$

2. $\dfrac{\sqrt{84a^7b^{10}}}{\sqrt{24a^8b^4}}$ $= \sqrt{\dfrac{7\,b^6}{2a}} = \dfrac{b^3\sqrt{7}}{\sqrt{2a}}$ OR $b^3\sqrt{\dfrac{7}{2a}}$

3. $\dfrac{\sqrt[3]{5a^7b^2}}{\sqrt[3]{15ab^{10}}}$

Which of these is a rational number?

Irrational #: a # that can be written as a fraction

1. $12.8 = \frac{128}{10}$
2. $\sqrt{25} = \frac{5}{1}$
3. $\sqrt{3}$
4. $\frac{19}{7}$

What do we call #3? Irrational

To rationalize a denomintor means to remove any irrational number from the denominator.

Rationalize each denominator

1. $\frac{2}{\sqrt{11}} \cdot \frac{\sqrt{11}}{\sqrt{11}} = \frac{2\sqrt{11}}{11}$

2. $\frac{10}{\sqrt{6w}} \cdot \frac{\sqrt{6w}}{\sqrt{6w}} = \frac{10\sqrt{6w}}{6w} = \frac{5\sqrt{6w}}{3w}$

3. $\frac{7}{\sqrt{8}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{7\sqrt{2}}{4}$

Rationalize each denominator

$\frac{1}{\sqrt[3]{ab^2}} \cdot \frac{\sqrt[3]{a^2b}}{\sqrt[3]{a^2b}} = \frac{\sqrt[3]{a^2b}}{\sqrt[3]{a^3b^3}} = \frac{\sqrt[3]{a^2b}}{ab}$

$\sqrt[3]{a^3b^3}$

Rationalize the denominator

$\frac{9}{\sqrt[4]{c^2d^3e}} \cdot \frac{\sqrt[4]{c^2de^3}}{\sqrt[4]{c^2de^3}} = \frac{9\sqrt[4]{c^2de^3}}{cde}$

$\sqrt[4]{c^4d^4e^4}$

Rationalize the denominator

$\frac{9}{\sqrt{8j^7k^{13}}} \cdot \frac{\sqrt{8j^7k^{13}}}{\sqrt{8j^7k^{13}}} = \frac{9\sqrt{8j^7k^{13}}}{8j^7k^{13}}$

$= \frac{18j^3k^6\sqrt{2jk}}{8j^7k^{13}}$

$= \frac{9\sqrt{2jk}}{4j^4k^7}$

Rationalize the denominator

$$\frac{12a}{\sqrt[4]{6a^3b^5c}} \cdot \frac{\sqrt[4]{6^3a^1b^3c^3}}{\sqrt[4]{6^3a^1b^3c^3}} = \frac{12a\sqrt[4]{216ab^3c^3}}{6ab^2c}$$

$$\sqrt[4]{6^4a^4b^8c^4} = \frac{2\sqrt[4]{216ab^3c^3}}{b^2c}$$

You can now do Hwk #16
Sec 7-2

Pages 377-378

Problems 19, 20, 24, 25, 28, 30, 43, 46, 50, 53