

Simplify:

$$\frac{3\sqrt{10}}{\sqrt{6}} \left(\frac{\sqrt{6}}{2\sqrt{6}} \right)$$

$$= \frac{3\sqrt{60}}{6}$$

$$= \frac{6\sqrt{15}}{6}$$

$$= \sqrt{15}$$

$$\frac{6}{\sqrt{18}} \left(\frac{\sqrt{18}}{\sqrt{18}} \right)$$

$$= \frac{18\sqrt{2}}{18}$$

$$= \sqrt{2}$$

$$\frac{5\sqrt{48}}{\sqrt{50}}$$

$$\sqrt{50}$$

$$= \frac{20\sqrt{3}}{5\sqrt{2}} \left(\frac{\sqrt{2}}{\sqrt{2}} \right)$$

$$= \frac{20\sqrt{6}}{5(2)}$$

$$= 2\sqrt{6}$$

$$= \frac{2x^3\sqrt{5x}}{3x\sqrt{8x^3}} \left(\frac{\sqrt{8x^3}}{\sqrt{8x^3}} \right)$$

$$= \frac{2x^3\sqrt{40x^4}}{3x(8x^3)}$$

$$= \frac{4x^5\sqrt{10}}{24x^4}$$

$$= \frac{1}{6}x\sqrt{10}$$

$$= \frac{\text{OR}}{6}x\sqrt{10}$$

Other indicies

$$x^2 \cdot x^3 = x^5 = x^1$$

$$\sqrt{x} \cdot \sqrt{x} = x$$

$$\sqrt[3]{x} \cdot \sqrt[3]{x}$$

Simplify:

$$\frac{6}{\sqrt[3]{5}} \cdot \frac{(\sqrt[3]{5})^2}{(\sqrt[3]{5} \cdot \sqrt[3]{5})}$$

$$= \frac{6(\sqrt[3]{5})^2}{5}$$

$$= \frac{2\sqrt{2}}{\sqrt[5]{64}} \left(\frac{\sqrt[5]{64}}{\sqrt[5]{64}} \right)^4$$

$$= \frac{2\sqrt{2}(\sqrt[5]{64})^4}{64}$$

$$= \frac{2\sqrt{2}(2\sqrt[5]{2})^4}{64}$$

$$= \frac{2\sqrt{2}(16\sqrt[5]{2})^4}{64}$$

$$= \frac{32\sqrt{2}(\sqrt[5]{2})^4}{64} \rightarrow (\sqrt[n]{x^k})^m = \sqrt[n \cdot m]{x^k}$$

$$= \frac{1}{2} \sqrt{2} \sqrt[5]{16}$$

$$= \frac{1}{2} (2)^{1/2} (2)^{4/5}$$

$$= \frac{2^{5/10} \cdot 2^{8/10}}{2^1}$$

$$= \frac{2^{13/10}}{2^{10/10}}$$

$$= 2^{3/10}$$

$$= (\sqrt[10]{2})^3 = \sqrt[10]{8}$$

How about polynomial NUMERATORS ??

$$\frac{8\sqrt{180x^3} - 6\sqrt{147}}{7\sqrt{128x^4}}$$

30x5 49x3
64x2

$$\frac{48x\sqrt{5x} - 42\sqrt{3}}{56x^2\sqrt{2}}$$

$$\frac{48x\sqrt{10x} - 42\sqrt{6}}{56x^2(2)}$$

$$= \frac{\overset{\div 2}{48}x\sqrt{10x} - \overset{\div 2}{42}\sqrt{6}}{\div 2 \cdot 112x^2}$$

$$= \frac{24x\sqrt{10x} - 21\sqrt{6}}{56x^2}$$

$$\frac{3\sqrt{8x^5} + 2x}{3x\sqrt{2x}} \left(\frac{\sqrt{2x}}{\sqrt{2x}} \right)$$

$$\frac{3\sqrt{16x^6} + 2x\sqrt{2x}}{3x(2x)}$$

$$\overset{\div 2x}{=} \frac{12x^3 + 2x\sqrt{2x}}{6x^2}$$

$$\overset{\div 2x}{=} \frac{6x^2 + \sqrt{2x}}{3x}$$

Practice Problems...(monomial denominators)

#6, 7, 8, 15, 20