

Surds lesson 5 - Division

Tuesday, December 31, 2013
5:00 PM

$$\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$$

$$\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$$

Simplify $\frac{\sqrt{33}}{\sqrt{3}} = \sqrt{\left(\frac{33}{3}\right)} = \sqrt{11}$

Simplify $\frac{\sqrt{50}}{\sqrt{10}} = \sqrt{\left(\frac{50}{10}\right)} = \sqrt{5}$

Simplify $\frac{3\sqrt{42}}{2\sqrt{6}} = \frac{3}{2} \times \frac{\sqrt{42}}{\sqrt{6}}$

$$\frac{a}{b} \times \frac{c}{d} = \frac{ac}{bd}$$

$$= \frac{3}{2} \times \sqrt{\frac{42}{6}}$$

$$= \frac{3}{2} \sqrt{7}$$

Simplify $\frac{7\sqrt{48}}{3\sqrt{8}} = \frac{7}{3} \times \frac{\sqrt{48}}{\sqrt{8}}$

$$= \frac{7}{3} \times \sqrt{\frac{48}{8}}$$

$$= \frac{7}{3} \times \sqrt{6}$$

Simplify $\frac{\sqrt{72x^3y^4}}{\sqrt{4x^2y}} = \sqrt{\left(\frac{72x^3y^4}{4x^2y}\right)}$

$$= \sqrt{18xy^3}$$

$$= \sqrt{9 \times 2 \times x \times y^2 \times y}$$

$$= \sqrt{9} \times \sqrt{y^2} \times \sqrt{2xy}$$

$$= 3y\sqrt{2xy}$$

Simplify $\frac{\sqrt{27x^4y^5}}{\sqrt{18x^2y^3}} = \sqrt{\frac{27x^4y^5}{18x^2y^3}}$

$$= \sqrt{\frac{3y^2}{2x^3}}$$

$$= \frac{\sqrt{3y^2}}{\sqrt{2x^3}} = \frac{\sqrt{3} \times \sqrt{y^2}}{\sqrt{2} \times \sqrt{x^2} \times \sqrt{x}}$$

$$= \frac{y\sqrt{3}}{x\sqrt{2x}}$$

Simplify $\frac{\sqrt{12x^2y^3}}{\sqrt{8x^2y^4}} \times \frac{4\sqrt{x^5}}{2\sqrt{y^2}}$

$$= \sqrt{\frac{12x^2y^3}{8x^2y^4}}$$

$$= \sqrt{\frac{3x^5}{2y}} \times \frac{4}{2} \times \frac{x^2}{y}$$

$$= \frac{\sqrt{3x^5}}{\sqrt{2y}} \times \frac{4}{2} \times \frac{x^2 \times \sqrt{x}}{y}$$

$$= \frac{4x^2\sqrt{3x^3}}{2y\sqrt{2y}} = \frac{4x^2 \times x^3 \times \sqrt{3}}{2y\sqrt{2y}}$$

$$= \frac{4x^5\sqrt{3}}{2y\sqrt{2y}}$$