

## MAT 104 Quiz 27

Friday, November 19, 2004

1. Simplify

$$\sqrt{\frac{7x^4y^3}{7z}}$$

$$\begin{aligned}\sqrt{\frac{7x^4y^3}{7z}} &= \sqrt{\frac{x^4y^3}{z}} \\ &= \sqrt{\frac{x^4y^3z}{z^2}} \\ &= \frac{x^2y\sqrt{y}}{z}\end{aligned}$$

2. Simplify

$$\sqrt[3]{\frac{2x^2}{3y^3}}$$

$$\begin{aligned}\sqrt[3]{\frac{2x^2}{3y^3}} &= \sqrt[3]{\frac{2 \cdot 3^2x^2}{3^3y^3}} \\ &= \frac{\sqrt[3]{18x^2}}{3y}\end{aligned}$$

3. Simplify

$$\frac{1}{\sqrt{x} + \sqrt{y}}$$

$$\begin{aligned}\frac{1}{\sqrt{x} + \sqrt{y}} &= \frac{\sqrt{x} - \sqrt{y}}{(\sqrt{x} + \sqrt{y})(\sqrt{x} - \sqrt{y})} \\ &= \frac{\sqrt{x} - \sqrt{y}}{x - y}\end{aligned}$$

4. Simplify

$$\frac{\sqrt{3}}{3} + \frac{2}{\sqrt{3}} + \sqrt{12}$$

$$\begin{aligned}\frac{\sqrt{3}}{3} + \frac{2}{\sqrt{3}} + \sqrt{12} &= \frac{\sqrt{3}}{3} + \frac{2\sqrt{3}}{3} + 2\sqrt{3} \\ &= \sqrt{3} \left( \frac{1}{3} + \frac{2}{3} + 2 \right) \\ &= 3\sqrt{3}\end{aligned}$$