Week 11 Problem of the Week

Math 170

Simplify

$$\log_{2\sqrt{2}}\left(32\sqrt[5]{4}\right)$$

$$\log_{2\cdot 2^{1/2}}\left(2^5 \cdot 2^{2/5}\right)$$

$$\log_{2^{3/2}}\left(2^{27/5}\right)$$

$$\frac{\log 2^{27/5}}{\log 2^{3/2}}$$

$$\frac{\frac{27}{5}\cdot \log 2 \cdot \frac{2}{3}}{\frac{3}{2}\cdot \log 2 \cdot \frac{2}{3}}$$

$$\frac{27}{5}\cdot\frac{2}{3} = \frac{18}{5}$$