

Math 0099
University of North Georgia
Summer 2015
Quiz #4

Name: Key Date: June 16, 2015

Simplify

$$1. \frac{(9xy^2)^{-\frac{1}{2}}}{(216x^{\frac{1}{2}}y^{-1})^{\frac{1}{3}}} = \frac{9^{-\frac{1}{2}} x^{-\frac{1}{2}} y^{-1}}{216^{\frac{1}{3}} x^{\frac{1}{6}} y^{-\frac{1}{3}}} = \frac{216^{\frac{1}{3}} x^{\frac{1}{6}}}{x^{\frac{1}{2}} y^{\frac{1}{3}} y^{-\frac{1}{4}}} = \sqrt[3]{216} x^{\frac{1}{6} - \frac{3}{6}} = \frac{1-3}{6} = -\frac{1}{3}$$

$$9^{\frac{1}{2}} y^{\frac{1}{3} + \frac{1}{4}} = \frac{4 \cdot 3}{12} = \frac{7}{12}$$

$$= \frac{6 x^{-\frac{1}{3}}}{3 y^{\frac{7}{12}}} = \boxed{\frac{2}{x^{\frac{1}{3}} y^{\frac{7}{12}}}}$$

2. $\sqrt[4]{x^{20}y^{16}z^4}$

$$\sqrt[4]{(x^5)^4 \cdot (y^4)^4 \cdot (z^1)^4}$$

$$\boxed{x^5 y^4 z}$$

3. $\sqrt[5]{x^7y^{13}}$

$$\sqrt[5]{(x^1)^5 \cdot x^2 \cdot (y^2)^5 \cdot y^3}$$

$$\boxed{xy^2 \sqrt[5]{x^2 y^3}}$$