

Intermediate Algebra
University of North Georgia
Fall 2015
Quiz #4

Name: Key Date: September 16, 2015

Simplify

1. $\sqrt{75x^5y^7z^8}$

$$= \sqrt{\underset{\downarrow}{(5)^2} \cdot 3 \cdot \underset{\downarrow}{(x^2)^2} \cdot x \cdot \underset{\downarrow}{(y^3)^2} \cdot y \cdot \underset{\downarrow}{(z^4)^2}}$$

$$= \boxed{5x^2y^3z^4\sqrt{3xy}}$$

$$75 = 3 \cdot 5^2$$

$$\uparrow$$

$$\textcircled{3} \cdot 25$$

$$\uparrow$$

$$\textcircled{5} \cdot \textcircled{5}$$

2. $\sqrt{32a^2b^3} - ab\sqrt{98b}$

$$32 = 2^5 = 2 \cdot 2^4$$

$$\uparrow$$

$$= 2 \cdot 4^2$$

$$\textcircled{2} \cdot 16$$

$$\uparrow$$

$$\textcircled{2} \cdot 8$$

$$\uparrow$$

$$\textcircled{2} \cdot 4$$

$$\uparrow$$

$$\textcircled{2} \cdot \textcircled{2}$$

$$98 = 2 \cdot 7^2$$

$$\uparrow$$

$$\textcircled{2} \cdot 49$$

$$\uparrow$$

$$\textcircled{7} \cdot \textcircled{7}$$

$$4ab\sqrt{2b} - 7ab\sqrt{2b}$$

$$\boxed{-3ab\sqrt{2b}}$$

$$3. \left(\frac{abc}{a^{\frac{1}{2}} b^{\frac{1}{4}} c^{\frac{1}{2}}} \right)^{-2}$$

$$= \left(\frac{a^{-\frac{1}{2}} b^{\frac{1}{4}} c^{\frac{1}{2}}}{abc} \right)^2$$

$$= \frac{a^{-1} \cdot b^{\frac{1}{2}} \cdot c}{a^2 \cdot b^2 \cdot c^2}$$

$$= \frac{b^{\frac{1}{2} - 2} \cdot c^{1-2}}{a \cdot a^2}$$

$$= \frac{b^{-\frac{3}{4}} \cdot c^{-1}}{a^3}$$

$$= \frac{1}{a^3 b^{\frac{3}{4}} c}$$

$$\frac{1}{2} - \frac{2}{1} = \frac{1-4}{2}$$

$$= -\frac{3}{2}$$