

Algebra 201-007-50 03

Quiz 5

October 3, 2008

Name: SOLUTIONS

Student Number:

1. (10 marks). Simplify, expressing the answers with positive exponents only:

a)

$$\frac{(2a^6)^2 (a^2 b^{-2})^{-3}}{(3ab)^4}$$

$$= \frac{(2a^6)^2}{(3ab)^4 (a^2 b^{-2})^3} = \frac{(2)^2 (a^6)^2}{(3)^4 a^4 b^4 (a^2)^3 (b^{-2})^3}$$

$$= \frac{4 a^{12}}{81 a^4 b^4 a^6 b^{-6}}$$

$$= \frac{4 a^{12} b^6}{81 a^{10} b^4} = \frac{4 a^2 b^2}{81}$$

b)

$$\left(\frac{4x^{-1}x^{-40}}{2^{-2}x^4y^{-10}} \right)^{-2}$$

$$= \frac{(4)^{-2} (x^{-1})^{-2} (x^{-40})^{-2}}{(2^{-2})^{-2} (x^4)^{-2} (y^{-10})^{-2}} = \frac{4^{-2} x^2 x^{80}}{2^4 x^{-8} y^{20}}$$

$$= \frac{x^{82} x^8}{2^4 4^2 y^{20}} = \frac{x^{90}}{16 \cdot 16 y^{20}} = \frac{x^{90}}{256 y^{20}}$$