

Last Name: SOLUTIONS

First Name: _____

Student ID: _____

Quiz 1 (A)

Question 1. Simplify the following expressions:

$$(a) (4 \text{ marks}) \quad \frac{(2xy^{-3})^{-2}}{(3x^{-2}y^4)^{-3}} = \frac{2^{-2}(x)^{-2}(y^{-3})^{-2}}{3^{-3}(x^{-2})^{-3}(y^4)^{-3}} = \frac{2^{-2}x^{-2}y^6}{3^{-3}x^6y^{-12}}$$

$$= \frac{3^3 y^6 y^{12}}{2^2 x^6 x^2} = \frac{27 y^{18}}{4 x^8}$$

$$(b) (3 \text{ marks}) \quad \left(\frac{27x^{-3}}{64y^{-3}} \right)^{-1/3} = \frac{27^{-1/3} (x^{-3})^{-1/3}}{(64)^{-1/3} (y^{-3})^{-1/3}}$$

$$= \frac{27^{-1/3} x}{64^{-1/3} y} = \frac{64^{1/3} x}{27^{1/3} y} = \frac{4x}{3y}$$

$$(c) (3 \text{ marks}) \quad \sqrt[6]{64x^8y^3} = (64x^8y^3)^{1/6}$$

$$= 64^{1/6} (x^8)^{1/6} (y^3)^{1/6} = 2x^{4/3}y^{1/2}$$