Dawson College: Civil Technology: 201-912-DW 02

September 4, 2009

Name: SOLUTIONS

Student ID: _____

Quiz 1

Question 1. *(5 marks)*
Simplify the following expressing your final answer using positive exponents only:

(a) $(n^{-2}-2n^{-1})^2$ $= \left(\frac{1}{n^2} - \frac{2}{n}\right)^2 = \left(\frac{1}{n^2} - \frac{2n}{n^2}\right)^2$

$= \left(\frac{1-2n}{n^2}\right)^2 = \frac{(1-2n)^2}{n^4}$

(b) $\frac{4a^{5/6}b^{-1/5}}{a^{2/3}b^2}$ $= \frac{4a^{\frac{5}{6}-\frac{2}{3}}}{b^{2+\frac{1}{5}}} = \frac{4a^{1/6}}{b^{11/5}}$

Question 2. *(3 marks)* Solve for V_2 in the following formula:

$$P = \frac{V_1(V_2 - V_1)}{gJ}$$

$$gJP = V_1(V_2 - V_1)$$

$$\frac{gJP}{V_1} = V_2 - V_1$$

$$\frac{gJP}{V_1} - V_1 = V_2$$

$$\frac{gJP - V_1^2}{V_1} = V_2$$

Questions 3. *(2 marks)* Find the equation of the line that passes through $(1, -2)$ and is perpendicular to a line with a slope of 3. $m_1 = 3$

$$\therefore m_2 = -\frac{1}{3}$$

EQUATION: $y - (-2) = -\frac{1}{3}(x - 1)$

$$y + 2 = -\frac{1}{3}(x - 1)$$

OR

$$y + 2 = -\frac{1}{3}x + \frac{1}{3}$$

$$y = -\frac{1}{3}x + \frac{1}{3} - 2$$

$$y = -\frac{1}{3}x - \frac{5}{3}$$