Dawson College: **Civil Technology**: 201-912-DW 02 September 11, 2009

Name: SOLUTIONS

Student ID: _____

Quiz 2

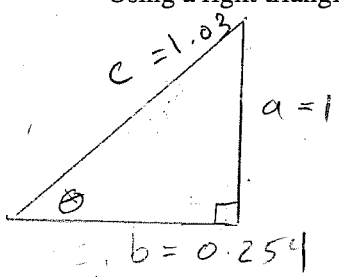
Question 1. *(3 marks)*
Convert 2320 pounds per cubic foot (lbs/ft^3) to kg per cubic centimeter.

NOTE $1\text{lbs} = \frac{1}{2.20}\text{kg}$ $\quad 1\text{ft} = 30.5\text{cm}$

$$2320\ \frac{\text{lbs}}{\text{ft}^3} = 2320\ \frac{\left(\frac{1}{2.20}\text{kg}\right)}{(30.5\text{cm})^3}$$

$$= 0.0372\ \frac{\text{kg}}{\text{cm}^3}$$

Question 2. *(4 marks)*
Using a right triangle (not inverse trig functions) and given $\cot\theta = 0.254$ find $\cos\theta$ and $\tan\theta$.



$$\cot\theta = \frac{b}{a} = \frac{0.254}{1}$$

$$c = \sqrt{1^2 + (0.254)^2} = 1.03$$

$$\cos\theta = \frac{0.254}{1.03} = 0.247$$

$$\tan\theta = \frac{1}{0.254} = 3.94$$

Question 3. *(3 marks)* Using inverse trig functions, find $\csc\theta$ given $\cos\theta = 0.1063$. Make sure to round the result correctly.

$$\theta = \cos^{-1} 0.1063 = 83.90^\circ$$

$$\therefore \csc\theta = \frac{1}{\sin 83.90} = 1.006$$