

Name: _____

HWR 201

Assignment 2: Measurement and Quantitative Skills

Directions: SHOW all of your work. Circle your answers. Report all answers with 3 significant figures.

1. Write the following in terms of the dimensions M, L, and T. THEN, simplify to lowest terms.

(Hint1: ac = acre and ha = hectare, these are areas)

(Hint2: acre-ft is a hydrology unit which is a volume and means acre multiplied by feet)

Example:

$$\frac{\text{in} \cdot \text{ft}^3}{\text{km}^3 \cdot \text{sec}} = \frac{\cancel{L} \cdot \cancel{L^3}}{\cancel{L^3} \cdot T} = \left(\frac{L}{T} \right)$$

a. $\frac{\text{gallons} \cdot \text{mi} \cdot \text{ft}^2}{\text{gram} \cdot \text{in}^3 \cdot \text{hr}} =$

b. $\frac{\text{km} \cdot \text{gram} \cdot \text{liters}}{\text{ft} \cdot \text{month}} =$

c. $\frac{\text{acre-ft} \cdot \text{day}}{\text{m}^2 \cdot \text{ft} \cdot \text{sec}^2} =$

d. $\frac{\text{inches} \cdot \text{lb} \cdot \text{mi}^2}{\text{sec}^2 \cdot \text{yr} \cdot \text{ton}} =$

e. $\frac{\text{kg} \cdot \text{ft} \cdot \text{cm}^2 \cdot \text{ha} \cdot \text{hr}}{\text{sec} \cdot \text{yd} \cdot \text{ft}^3 \cdot \text{mg}} =$

2. Write the following in scientific notation. (Hint1: your answer should have only one digit to the left of the decimal point and two digits to the right of the decimal.) (Hint 2: If there is no decimal point, it is at the end of the number.)

a. 0.0124 _____

b. 83945.22 _____

c. 0.000914 _____

d. 467777749 _____

e. 0.003333 _____

f. 25.54 _____

g. 9080 _____

h. 0.357 _____

3. Convert the following temperatures. Show work.

a. 40°C = _____ $^{\circ}\text{F}$

b. -8°C = _____ $^{\circ}\text{F}$

c. 350°F = _____ $^{\circ}\text{C}$

d. 62°F = _____ $^{\circ}\text{C}$

4. Convert the following units. Show all work.

Example:

$$40 \frac{m}{hr} = \frac{ft}{sec}$$

$$40 \frac{\cancel{m}}{\cancel{hr}} \times \frac{1 \cancel{hr}}{3600 sec} \times \frac{1 ft}{0.3048 \cancel{m}} = \textcircled{0.036 \frac{ft}{sec}}$$

a. 600 ft^3 = m^3

b. 75 liters = gallons

c. $50 \frac{ft}{sec}$ = $\frac{mi}{hr}$

d. $2.5 \frac{in}{acre}$ = $\frac{cm}{ft^2}$

e. $900 \frac{kg}{m^3}$ = $\frac{lbs}{gallon}$

f. $300 \frac{acre-ft}{year}$ = $\frac{gallons}{day}$