Ch. 2 & 11 conversion factors & moles test 50 points (10 ec) honors chem

Academic Honesty: The answers on this test are my own and I am using only the allowed set of notes as described in the syllabus / test directions. I have not discussed the test questions with anyone before or during the test nor have I seen the test questions prior to the exam. I will not use any online resources except google classroom and any links in the test directions during the test. If you violate any of the preceding items or do not sign, your semester grade is a F.

Signature: _____

Feel free to adjust the amount of spacing between problems to fit your answer.

1. Solve; fill-in the blank. [10 points] 2pt ea

a. 38.0 ÷ 7.00 = 5.42857 → 5.43

b. 38 * 7.0 = 266 → 27·10 or $2.7 \cdot 10^2$

c. 3.479 + 5.23 = 8.709 → 8.71

d. 0.0035702 - 0.0014 = 0.0021702 → 0.0022

e. One-third of 122 = 40.6666 → 40.7

2. Solve; fill-in the blank. [20 points]

a. 3.0 ft^2 = _____ cm^2 5pt ea: 3 + 2 ← sf & units ← setup

$3 ft^2 \left(\frac{12 in}{ft}\right)^2 \left(\frac{2.54 cm}{in}\right)^2 = 2.8 \cdot 10^3 cm^2$

b. $\frac{125\ km}{hour}$ = _____ $\frac{meters}{minute}$

$\frac{125 km}{h} \frac{h}{60 min} \frac{10^3 m}{km} = 208 \cdot 10$ or $2.08 \cdot 10^3$

c. Solve for k (in terms of mole & second), where: $\frac{5.0\ mmol}{second}$ = k (10.0 mole)²

$5 \cdot 10^{-3} \frac{mol}{sec} = k\ 10^2\ mol^2$

$k = \frac{5 \cdot 10^{-3}\ mol}{10^2\ mol^2} \frac{mol}{sec} = 5.0 \cdot 10^{-5} \frac{}{mol\ sec}$

d. 3.0 m^3 = ___ L

$3\ m^3 \left(\frac{10^2 cm}{m}\right)^3 \frac{mL}{cm^3} \frac{L}{10^3 mL} = 3.0 \cdot 10^3 L$

continue onto next page

3. Solve; fill-in the blank. [15 points]

a. 175 millimole of lithium sulfate = ____ grams of lithium sulfate

b. 35.0 kilogram of aluminum sulfate = ____ moles of aluminum sulfate

c. 88 billion dinitrogen pentasulfide molecules = _____ grams of dinitrogen pentasulfide

4. The combustion of 3.0 grams of an alcohol (hydrocarbon with oxygen; $C_xH_yO_z$) produces 6.6 grams of carbon dioxide and 3.6 grams of water. What is the empirical formula of the alcohol ? [15 points]