Problem Set #2
Chemistry 3A Fall 2025 (Secs 43957 & 43958)
2 pages

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1. Convert these numbers to scientific notation:

a. 0.2809

b. 9200

c. 9200.00

d. -344.1

e. 0.00024

f. 0.00024001

g. 0.0002400

2. Convert these to non-scientific notation (regular numbers)

a. 2.3×10^{5}

b. 3.4768×10^{-5}

c. 5.99200×10^{3}

3. Evaluate the expressions. The answer should have the correct number of decimal places and/or significant digits.

a. 24.12 + 43.04 - 23.943

b. 5.72 × 3.34

c. 2.4 × 3.01 - 3.3 ÷ 4

d. $(2.4 \times 10^{5}) \times (4.9 \times 10^{3})$

4. For each of the following, show your use of conversion factors and not just the answer.

Remember: when you do conversions, you are multiplying one or more conversion factors to get a result where the final quantity has the units you are asked to produce, and the factors must cancel the units used in the conversion.

a. 5 milliliters (mL) = ? liters (L)

b. 0.023 grams (g) = ? micrograms (μg)

c. 5.2 × 10-2 g = ? milligrams (mg)

d. 50 mg/dL = ? g/L

5. **True or False**

a. The precision of the resulting number determined by addition and subtraction operations on numbers is determined by the fewest significant digits. _____

b. The precision of the resulting number determined by multiplication and division operations on numbers is determined by the fewest significant digits. _____

c. A number expressed in scientific notation will sometimes not equal that number. _____

d. Scientific notation is a number whose format is a significand and a power of 10 with the appropriate exponent on the base 10. _____

e. The number "0.00024" has two significant digits. _____

f. The number "240,000,000" has two significant digits. _____

g. The number "240.00" has two significant digits. _____

h. A measurement is a quantity that must have a number with units. _____

[#1: 7 x 3pt, #2: 3 x 3 pt, #3: 4 x 4pt, #4-a,b,c: 4pt, d: 5p, #5: 8 x 2pt ### 79pt]