Key

Honors Chemistry
Review for Semester One Final Exam

Chapter 1

What is chemistry?
Branches of chemistry
Scientific method

Practice problems

1. What is chemistry? the study of matter and the changes it undergoes
2. Which measurement depends on gravitational force - mass or weight? weight
3. Which branch of chemistry studies the composition of substances? analytical
4. How does qualitative data differ from quantitative data? Qualitative - color, shape (observed with 5 senses) Quantitative - measurements
5. What is the function of the control in an experiment? Standard used for comparison

Chapter 2

Units of measurement
SI units for time, length, mass, density, volume, temperature
Formulas for volume and density
Metric conversions
Scientific notation
Dimensional analysis
Accuracy and Precision
Percent error
Significant figures
Interpreting graphs

Practice problems

How many significant figures do the following numbers have?

1) 1234 4
2) 0.023 2
3) 890 2
4) 91010 4
5) 9010.0 → 5
6) 1090.0010 8
7) 0.00120 3
8) 3.4×10^4 2
9) 9.0×10^{-3} 2
10) 9.010×10^{-2} 4

Solve the following mathematical problems such that the answers have the correct number of significant figures:

1) 334.54 grams + 198 grams 533 grams
2) 34.1 grams / 1.1 mL 31 g/ml
3) 2.11×10^3 joules / 34 seconds 62 J/s
4) 0.0010 meters - 0.11 m −0.11m
5) 349 cm + 1.10 cm + 100 cm 500cm
6) 450 meters / 114 seconds 3.9 m/s
7) 298.01 kilograms + 34.112 kilograms 332.12 kg
8) 84 m/s x 31.221 s 2600m

Convert the following numbers into scientific notation:

1) 3,400 3.4×10^3
2) 0.000023 → 2.3×10^{-5}
3) 101,000 1.01×10^5
4) 0.010 → 1.0×10^{-2}
5) 45.01 4.501×10^1
6) 1,000,000 1×10^6
7) 0.00671 6.71×10^{-3}
8) 4.50 4.50×10^0

Convert the following numbers into standard notation:

9) 2.30×10^4 23,000
10) 1.76×10^{-3} 0.00176
11) 1.901×10^{-7} → 0.000000190 1
12) 8.65×10^{-1} 0.865
13) 9.11×10^3 9,110
14) 5.40×10^1 → 54.0
15) 1.76×10^0 1.76