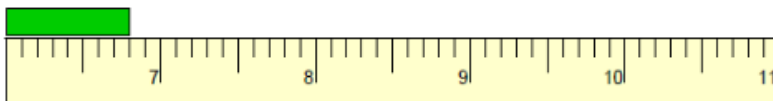
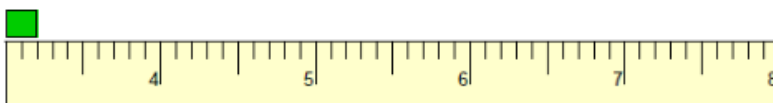
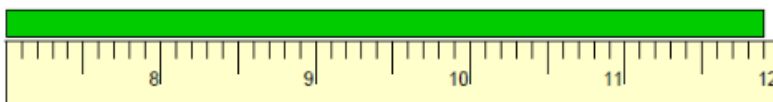


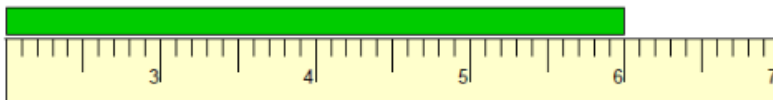
CHEMISTRY 65 REVIEW**Measurements:**

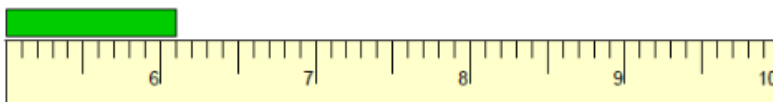
1. Shown below are several metric cm rulers like those you have in your lockers. Read each ruler to the proper number of significant digits? Be sure to include units with your answers.











Significant Figures:

1. Determine the number of significant figures in the following numbers.

a) 0.02 _____ b) 0.020 _____ c) 501 _____ d) 501.0 _____

e) 5,000 _____ f) 5,000. _____ g) 6,051.00 _____ h) 0.0005 _____

2. Rewrite/round each of the following numbers to 3 significant figures.

a) 0.03006 _____ c) 10,867,256 _____

b) 90,185 _____ d) 0.007997 _____

3. Perform the following operations expressing the answer with the correct number of significant figures.

a) $1.35 \text{ m} \times 2.467 \text{ m} =$

b) $0.021 \text{ cm} \times 3.2 \text{ cm} \times 100.1 \text{ cm} =$

c) $1.252 \text{ mm} \times 0.115 \text{ mm} \times 0.012 \text{ mm} =$

d) $55.46 \text{ g} - 28.9 \text{ g} =$

e) $12.01 \text{ mL} + 35.2 \text{ mL} + 6 \text{ mL} =$

f) $0.15 \text{ cm} + 1.15 \text{ cm} + 2.051 \text{ cm} =$

g) $\frac{4.00 \times 58.69}{(6.02 \times 10^{23}) \times 6.84} =$

h) $\frac{30.01 \text{ g}}{(62.6 - 56.3) \text{ mL}} =$

Unit Conversions:

1. Perform the following conversions, using unit analysis, and express the answers to the correct number of significant figures:

a) 100.0 g of ethanol to liters (density of ethanol = 0.79 g/mL)

b) 536 mg to kg

c) 25 m² to cm²

d) 65 mi/h to m/s (1 mi = 1.609 km)

e) 75 °F to K

2. What is the volume (in L) of 1.00 kg of mercury? (density of mercury =13.59 g/cm³)

3. Some people believe that large doses of vitamin C can cure the common cold. One commercial over-the-counter product contains 500.0 mg tablets that are 20.0% by mass vitamin C. How many tablets are needed for a 1.00 g dose of vitamin C?

4. A copper wire ($d=8.96 \text{ g/cm}^3$) has a diameter of 0.25 mm. If a sample of this wire has a mass of 22 g, how long is the wire? (Hint: copper wire is a thin cylinder)

5. A person with high cholesterol has 250 mg of cholesterol per 100.0 mL of blood. If the total blood volume of the person is 5.4 L, what is the total mass (in g) of cholesterol present in the person's blood?

Atomic Structure:

1. Using a periodic table, complete the missing information in the table below:

Atomic symbol	Atomic number	Protons	Neutrons	Electrons	Mass Number	Charge
Pb					208	+2
		34			79	0
			10	9		0
	41			36	93	
P	15		16			-3
Rb					85	+1
		46			106	0

2. Classify the following as either elements, compounds, homogeneous mixtures (solutions) or heterogeneous mixtures:

- a) copper (II) sulfate _____
- b) Kool Aid _____
- c) wood _____
- d) plastic _____
- e) lined paper _____

3. Calculate the atomic mass for potassium, given the natural abundances and the mass numbers of the isotopes.

- a) 93.12 % of ^{39}K 6.88 % of ^{41}K

Writing and Balancing Equations:

Write and balance each chemical equation described below:

1. Aluminum metal reacts with iron (II) oxide powder to produce aluminum oxide solid and iron metal.
2. Aluminum sulfate solution and calcium hydroxide solution produce a precipitate of aluminum hydroxide and solid calcium sulfate.
3. Ammonia gas (NH₃) plus oxygen gas yields nitrogen monoxide gas plus water vapor.
4. Calcium hydroxide solution and carbon dioxide gas yields solid calcium carbonate and liquid water.