# Chemistry 236 -- Quiz 1

September 5, 2007 — Statistics Basics

**Pledge and signature:**

**Note:** If you want your paper returned folded (*i.e.*, score concealed), please print your name on the back.

1. (2) Consider the number 7. If this represents a rounded experimental result, what are its absolute and percent uncertainties?

   ±0.5 ±7.1%

2. (3) A pressure is measured to be 654.15 Torr and is estimated to be uncertain by 0.35 %. Using the 10% rule, state this pressure and its uncertainty.

   654.2 ± 2.3 Torr

3. (5) Marge Inovera measures a quantity 23 times and obtains an average and a sum of squared residuals. If the latter is 984.155,

   a. Give Marge's estimated variance, standard deviation, and standard deviation in the mean. (Give precision commensurate with the provided information.)

      var = 44.7343 s.d. = 6.68837 sd mean = 1.39462

   b. Use the 10% rule to restate the latter two values.

      sy = 7; s(y-bar) = 1.4

4. (2) State the following quantities unambiguously to 5 significant figures:

   a. 12345678.9 b. 66.122500

   $1.2346 \times 10^7$ 66.122

5. (4) What would be the effect on the class average and variance on this quiz if I were to

   a. Subtract 5 points from all scores;

      mean' = mean – 5 no change in variance

   b. Decrease all scores by 25%?

      mean' = mean × 0.75 var' = var × $(0.75)^2$