Name_____ **Section**_____ **TA**_____

1. A student did five replicate analyses to determine the percent by weight of acetic acid in vinegar, and obtained these results: 4.78%, 4.92%, 4.69%, 4.88%, 4.91%. According to his Excel spreadsheet, the average is 4.836%, and the standard deviation is 0.098641. How should the student report his results to the correct number of significant digits?

2. If you make the following measurements in lab, what is the density of your sample? Show your work and report your answer to the correct number of significant digits.

Initial burette reading 20.03 ml
Final burette reading 32.58 ml
Empty beaker: 28.4972 grams
Beaker with sample: 40.5160 g

3. Suppose a student starts with a burette that is filled to exactly 0.00 ml with Diet Coke, and dispenses 10.63 ml into a beaker. But when he reads the decimal places on the final volume, he mistakenly reads the burette like a graduated cylinder, where the volume is increasing as you go up the tube, instead of reading it like a burette, where the volume increases as you move down. How would this error affect his calculated density? Explain your answer.