**Rules for Determining Significant Digits**

Rule #1:  Digits other than zero are always significant.

                        96 g                 2 significant digits

                        61.4 g              3 significant digits

                        0.52 g              2 significant digits

Rule #2: One or more final zeros used after the decimal point are always significant.

                        4.72 km           3 significant digits

                        4.7200 km       5 significant digits

                        82.0 m             3 significant digits

Rule #3: Zeros between two other significant digits are always significant.

                        5.029 m           4 significant digits

                        306 km            3 significant digits

Rule #4: Zeros used solely for spacing the decimal point are not significant. The zeros are placeholders only.

                        7000 g             1 significant digit

                        0.00783           3 significant digits

Note: If the quantity 7000 g has been measured on a balance that is accurate to the nearest gram, all four digits are significant. We must use a method to denote this. In this class a decimal will follow the number (7000.) to specify that they are all significant, or the number will be written in scientific notation. (7.000 x 103)

Not all numbers represent measurements. For instance, suppose there are 23 students in a chemistry class. How many significant digits are in 23? The 23 is not a measurement. We do not measure the number of students in a class. We count them. Students come in natural numbers. We cannot have 23.4 or 22.8 students. Since counted objects occur in exact numbers, we consider that these numbers contain an **indefinite** number of significant digits.