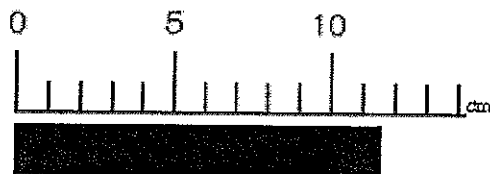


Measurements

measurement uncertainties- measurements can only be as good as the instrument used to take them
measurements should be reported one place beyond what's marked on the instrument, the certain digits and the estimated one

For example, the black line would be reported as _____



Precision: describes the degree of exactness, *precise data is clustered* within a small range

Accuracy: describes how close data is to the accepted value

When taking measurements, significant digits are used to show the digits in a measurement that are valid; these should be the measured digits including the estimated final digit. The measurement above should have _____ significant digits.

What about zeros? Not all zeros are significant, but some are!

1. Zeros in the middle of two nonzero numbers are significant
2. Zeros at the beginning of a number are placeholders, therefore not significant
3. Zeros at the end of a number are significant **IF** there is a decimal used

*Scientific notation is a useful way to clear up confusion about zeros

For example if 1,200,000 should have only 2 significant figures, write it as 1.2×10^6

If 3968.43 needs to be written with 3 significant figures, write it as 3.97×10^3

1944