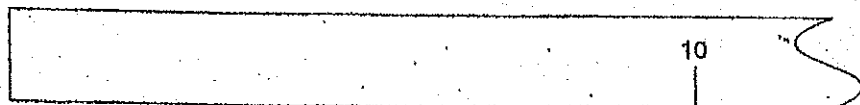


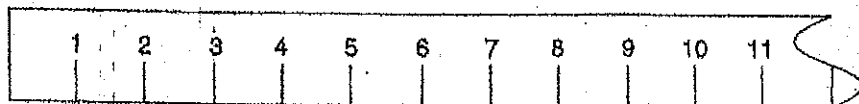
Significant Figures and Measurements

Measure the length of a paper clip on each ruler pictured below. The measurements will not be identical. Write your answers in the space provided.
NOTE: all measurements will be in cm even though the rulers vary!



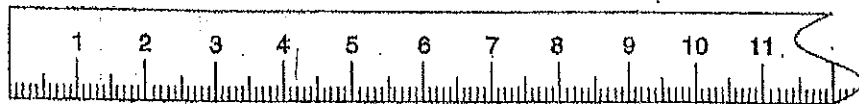
length of paper clip

4 cm



length of paper clip

4.1 cm



length of paper clip

4.18 cm

Questions: answer the following!

1. Were all your measurements identical? Explain.

No, Better tool/instrument, more digits reported as significant

2. Which measurement required the greatest amount of estimation? Explain.

1st

3. How do your measurements indicate this difference in the degree of estimation needed?

By # of Reported Digits / Sig figs

4. An electronic balance shows the mass of a sample of sodium chloride to be 29.732 g. What is the uncertainty of measurement? In what range can the true value exist?

.001

29.730 - 29.740

(not inclusive)

Accuracy & Precision:

1. What is meant by accuracy? Precision?

2. What does each of these targets show regarding accuracy & precision?



Accuracy



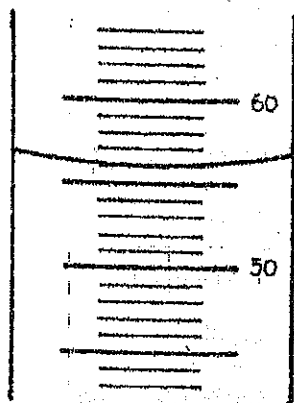
precision

3. What would a target look like that is both accurate & precise?

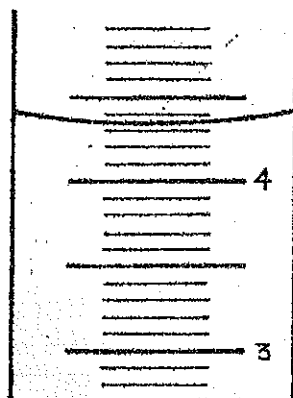


Properly record the measurement (value & unit) for each of the following!

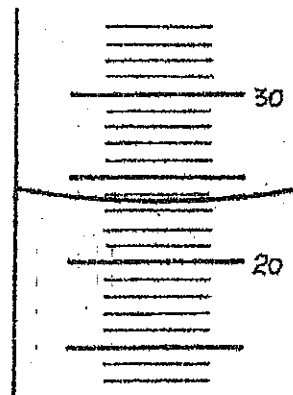
What volume is indicated on each of the graduated cylinders below? The unit of volume is mL.



a) 56.0 mL

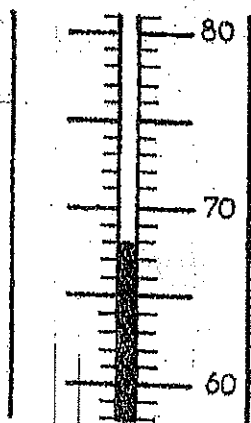


b) 4.35 mL

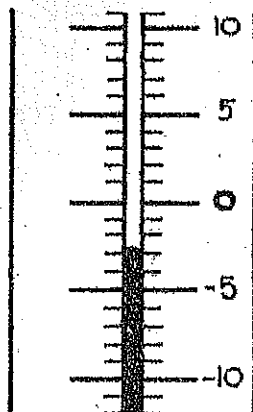


c) 23.8 mL

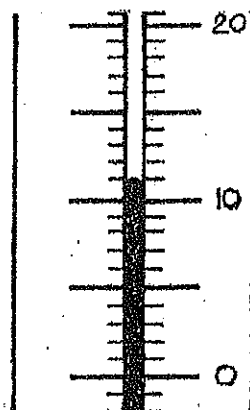
What temperature is indicated on each of the Celsius thermometers below?



a) 68.0 °C



b) -2.8 °C



c) 10.9 °C
11.0 °C

How many sig. figs are in each of the following?

2.005 (4)

0.010 (2)

16 oz / lbs

(N.A.)
Inf.

0.0012 (2)

10.010 (5)

950 (2)

100.0 (4)

1000 (1)

88.3°F (3)