HPS Measurement Packet Questions 2 Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Per \_\_\_\_\_

OBJECTIVE: measure length, volume, and mass with correct accuracy and precision using a variety of measuring devices. (Obj 2)

BACKGROUND INFO: No measure is exact due to errors in instrumentation and measuring skills. Therefore, all measurements have inherent uncertainty that must be recorded. When you report a number as a measurement, the number of digits and the number of decimal places tell you how exact the measurement is. That is precision.

1. What is the degree of freedom? (The packet refers to it as the “estimate” on the last line of the first paragraph on page 1.)
2. List and describe the three parts of a COMPLETE measurement along with an example of a measurement.  
   A.

1.

2.

B.

1.

2.

C.

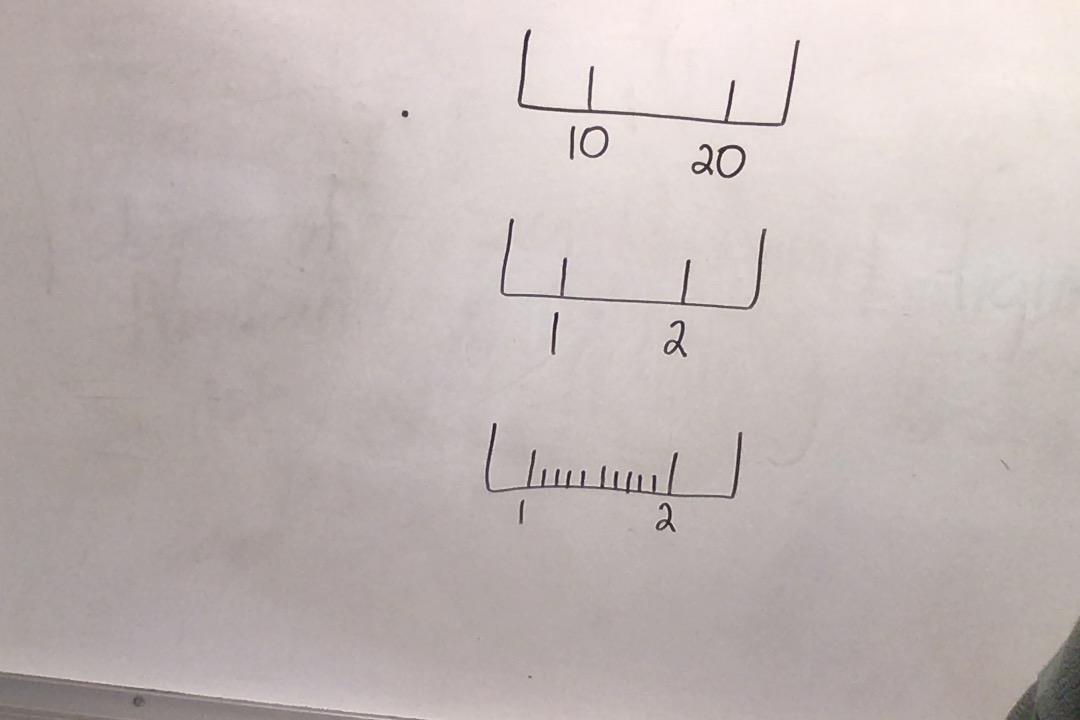
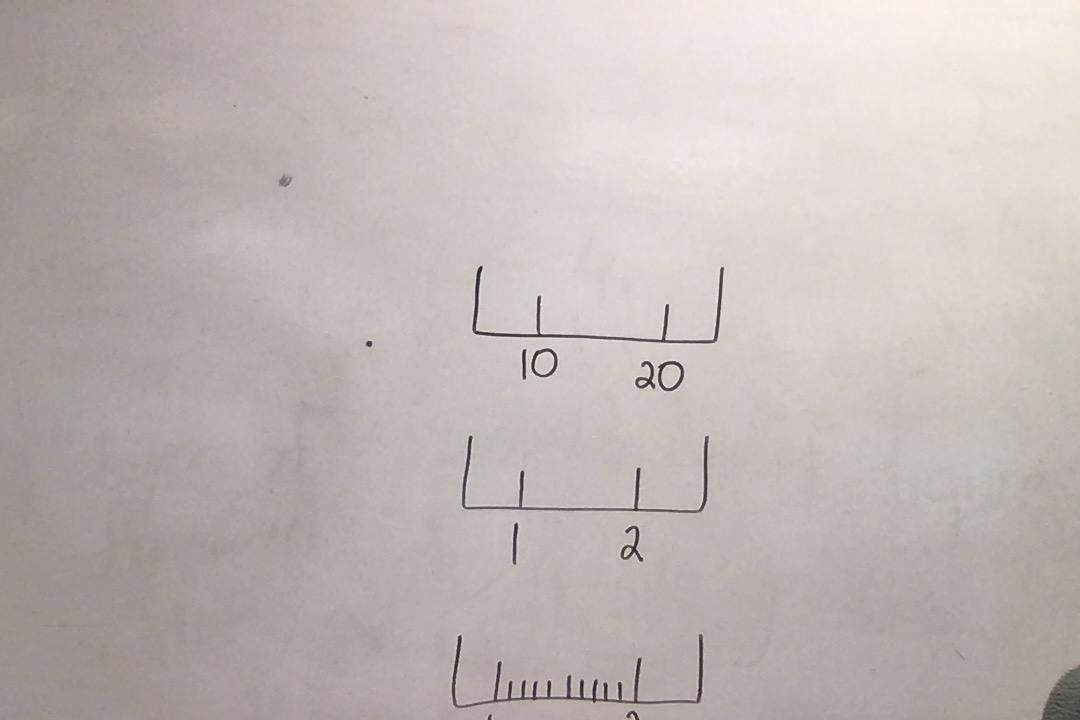
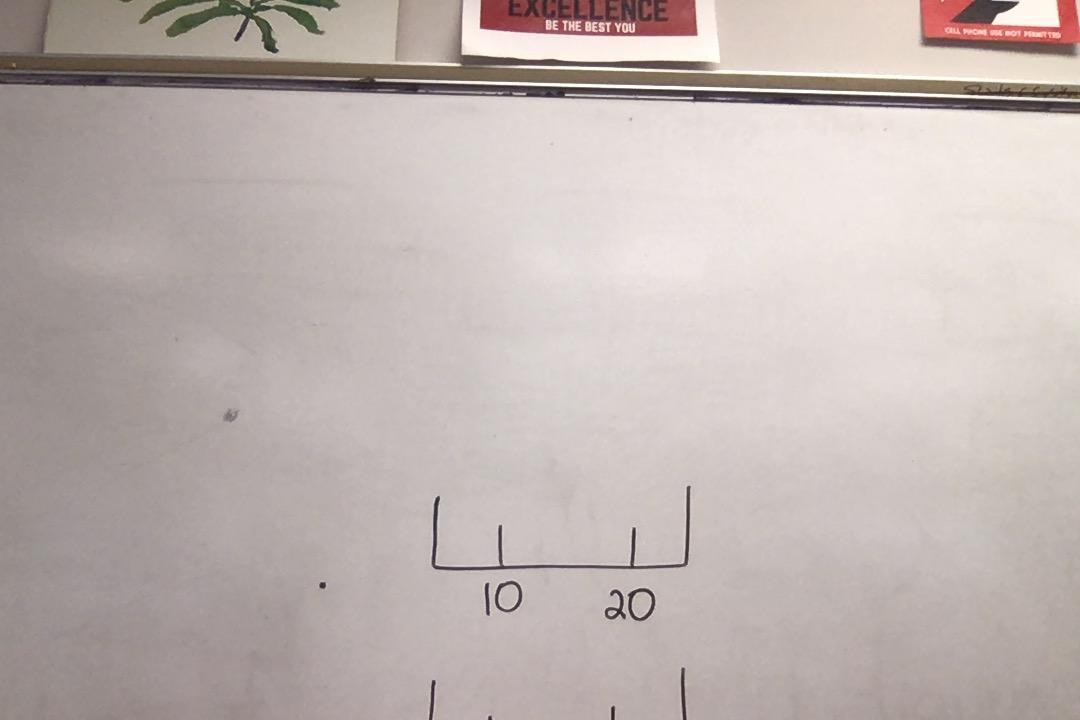
1.

2.

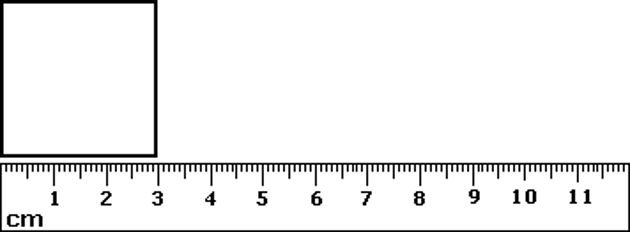
EX:

1. Write the letter of the measurement tool that could produce the following measurements. Assume all tools are in centimeters.

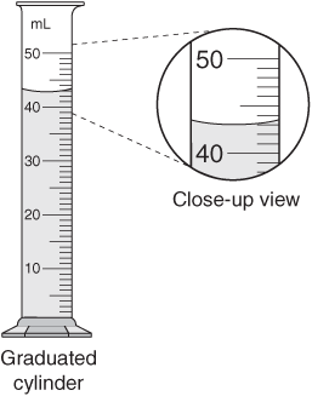
15.4 ± .5 cm \_\_\_\_\_\_\_ 15 ± 5 cm \_\_\_\_\_\_\_ 15.47 ± .05 cm \_\_\_\_\_\_\_

A. B. C.   


1. Which measurement/device is the most precise? Explain.
2. Measure the length of the square. Report all parts of the measurement. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



1. Measure the mystery liquid. Report all parts of the measurement. \_\_\_\_\_\_\_\_\_\_\_\_\_\_mL



1. Draw a measuring device that would give 7.3 ± .5 cm as a measurement.
2. Why do we need a standardized system of measurement?
3. Complete the table with the SI units and symbols.

|  |  |  |
| --- | --- | --- |
| **Physical Quantity** | **SI Unit** | **Symbol** |
| length |  |  |
| mass |  |  |
| volume |  |  |
| temperature |  |  |
| time |  |  |