

Bell Work, August 17– 21, 2015

Chemistry: measurement,

Chem, Bell Work, Monday, Aug 17

1. Fill in the blanks: Math is about numbers and science is about measurements.

2. A football field is 100 yards long. What is the quantity (property) being measured?

The length of the football field or distance.

3. What are the units of measurement?

Yards.

4. What is the magnitude of the measurement?

100

5. What is the measurement?

100 yards is the measurement.

Chem, Bell Work, Tuesday, Aug 18

1. What is meant by precision or precise measurements?

- Precision refers to the closeness of a set of measurements
- Precision is the ability reproduce a measurement.

(ex: 1.49, 1.48, 1.51, 1.52 are close to 1.50)

- If we weigh a 1.5 kilograms bag of sugar five times, each weight is close to 1.5 kg:
- Example: 1.51 kg, 1.51 kg, 1.50kg, 1.49 kg, 1.49 kg

2. What is meant by accuracy or accurate measurements?

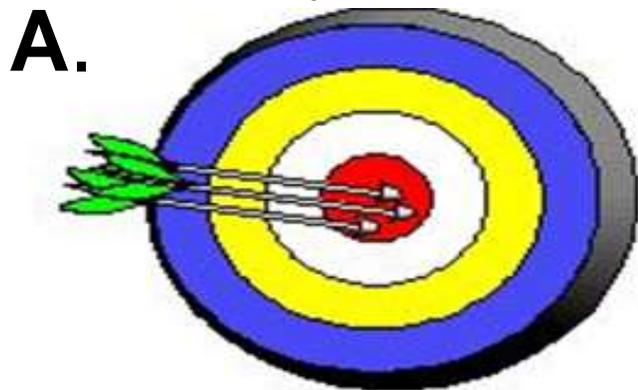
Accuracy refers to the closeness of measurements to the correct or accepted value of the quantity measured.

- Example: the true value of mass of the sugar is 1.5 kilograms so a measurement close to 1.5 kg is accurate.

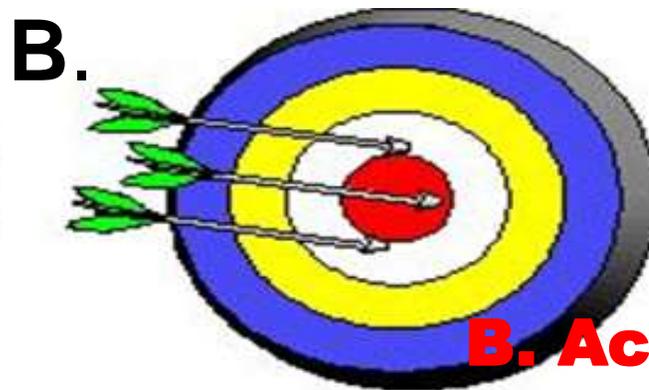
Chem, Bell Work, Tuesday, Aug 18

3. Draw the targets. Label as precise, accurate, both or neither.

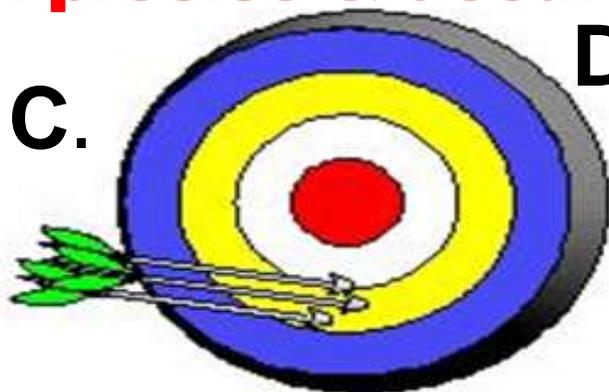
Bull's eye (center) = the true value



A. Both precise & accurate



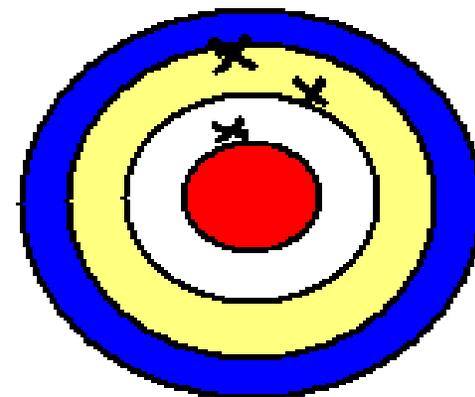
B. Accurate but not precise



C. Precise but not accurate



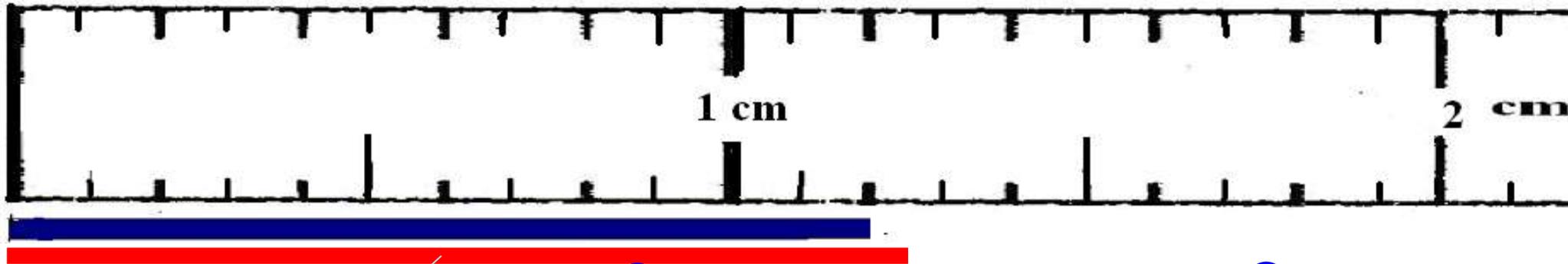
D. Neither precise nor accurate



Chem Bell Work, Wednesday, Aug 19

Draw the ruler and lines.

- Record the length of the blue line and the red line in centimeters (cm) using one uncertain digit.**
- Circle the uncertain digit.**
- Why is this digit uncertain?**



1. & 2. blue line: 1.20 cm red line: 1.26 cm

3. These digits are not marked on the ruler. They are estimates.

Bell Work, Thursday, Aug 20

m = meter, cm = centimeter, mm = millimeter, dm = decimeter,
km = kilometer, μ = micro, μm = micrometer,

1. How many dm = 1 meter? **10 dm = 1m**
2. How many cm = 1 meter? **100 cm = 1m**
3. How many mm = 1 meter? **1000 mm = 1m**
4. How many μm = 1 meter? **1,000,000 μm = 1m**
5. How many mm = 1cm **10 mm = 1cm**
6. How many meters = 1 cm **0.01 m = 1cm**
7. How many \$ = 1 cent **\$0.01 = 1¢**
8. How many meters = 1 mm? **0.001 m = 1mm**
9. How many meters = 1 km? **1000 m = 1km**
10. How many km = 1 meter **0.001 km = 1m**