SIGNIFICANT FIGURES

EVIDENCE NOTEBOOK

KEY IDEAS

1. Accuracy and precision

    a. Accuracy is the degree of agreement with the:

    b. Precision is the degree of agreement between:

    c. Identify the following images in terms of their accuracy and precision:

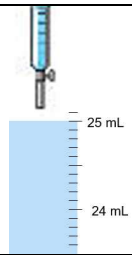| #	Data Set	Accuracy (high or low)	Precision (high or low)
I			
II			
III			
IV			

Draw a line connecting the image to the description
Most likely caused by equipment calibration
Ideal data set
Most likely cause by operator error
Worst case scenario

2. How would you record the following measurements?

Observation	Recorded Value	Explain why extra zeroes are needed when recording these values.
25 mL / 24 mL		
25 mL / 15 mL		

3. Are the following integers significant or not?

	Nonzero integers	Leading Zeros	Captive Zeros	Trailing Zeros
Significant or not?				
Examples				

4. Complete the following tables:

The prefixes can be used on any base unit. Grams is being used for this example.				
Prefix	Symbol	Value	Scientific Notation	Meaning Example
Giga		1,000,000,000		
	M		10^6	1 Mg = 10^6 g
		1,000		
	h			
deka		10		

The prefixes can be used on any base unit. meters is being used for this example.				
Prefix	Symbol	Value	Scientific Notation	Meaning Example
Deci				
	c	0.01		
				1 mm = 10^{-3} m
		0.000001		
Nano			10^{-9}	1 nm = 10^{-9} m

5. What type of number will not limit your significant figures for a calculation? Give an example.
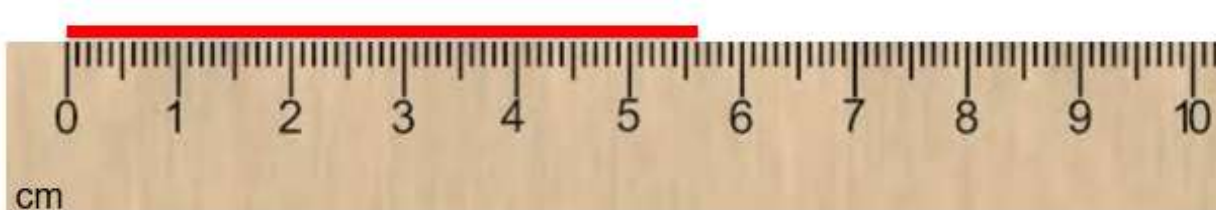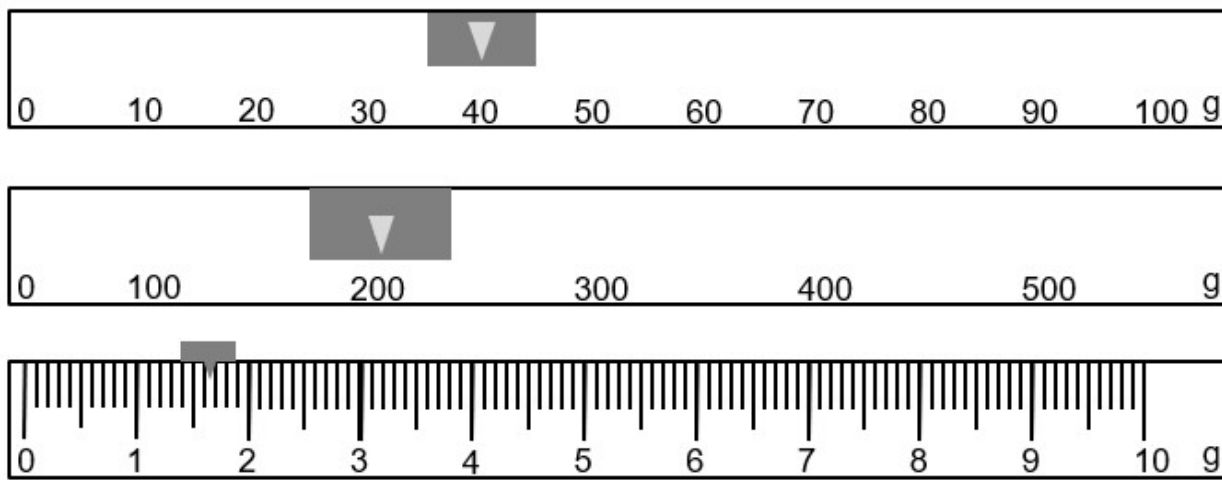
6. Write $1,274.52 with the following significant figures:

Number of Significant Figures	Answers
1	
2	
3	
4	
5	
6	
7	

7. Record the following measurements with proper significant figures:
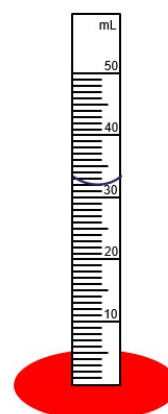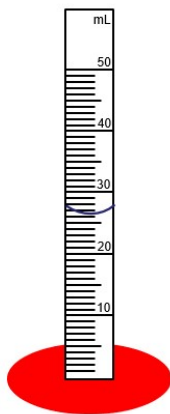   a. Ruler

   b. Triple Beam Balance

c. Graduated Cylinders

CHECKPOINTS

1. How many significant figures are in the following measurements?

   a. 83.94 g

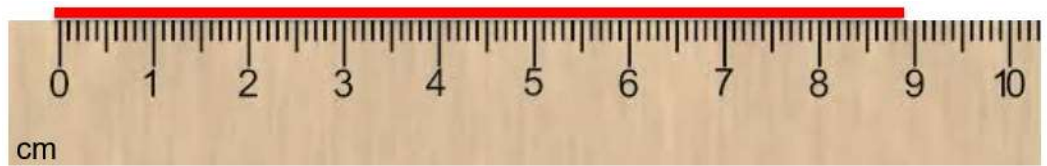   b. 0.072 mL

   c. 830 m

   d. 90.30 s

2. Write 730.418 with:

   a. 1 significant figure

   b. 2 significant figures

   c. 3 significant figures

   d. 5 significant figures

   e. 7 significant figures
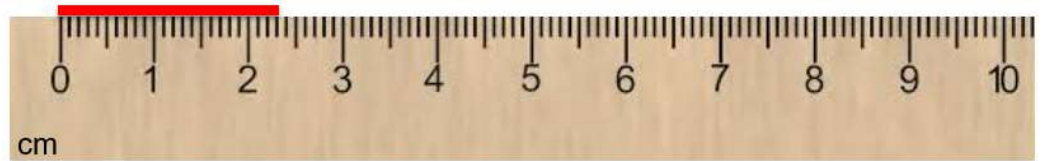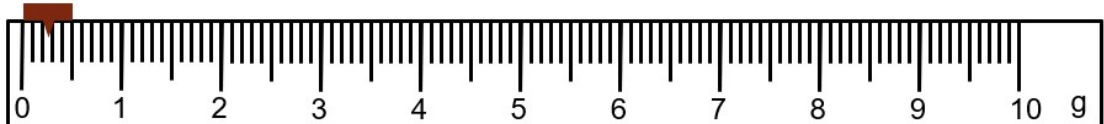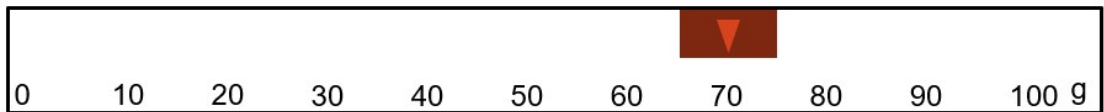
3. Record the measurements:

   a.

   b.

4. Record the measurement

5. Record the measurement