

9/26

Precision/Accuracy Hmwk:

1. Precision - repeatability, consistency (Range)
2. Accuracy - close to accepted value (% Error)

1. Student 2

2. C

3. A

$$1. \left| \frac{(10.95 - 11.342)}{11.342} \right| \times 100 = \boxed{3.456\% \text{ error}}$$

$$2. \left| \frac{(40.6 - 59.35)}{59.35} \right| \times 100 = \boxed{31.6\% \text{ error}}$$

$$3. \left| \frac{(25.32 - 25.50)}{25.50} \right| \times 100 = \boxed{0.7059\% \text{ error}}$$

$$4. \textcircled{A} \left| \frac{(47.01 - 47.00)}{47.00} \right| \times 100 = 0.02128\% \text{ Error}$$

$$\textcircled{B} \left| \frac{(46.88 - 47.00)}{47.00} \right| \times 100 = 0.2553\% \text{ Error}$$

Scale A is
more accurate

$$\left| \frac{(\text{measured} - \text{accepted})}{\text{accepted}} \right| \times 100 = \% \text{ error}$$

$$D = \frac{m}{V}$$


$$1. D = \frac{25.4g}{10.0cm^3} = \boxed{2.54g/cm^3}$$

$$2. V = \frac{2242g}{13.6g/cm^3} = \boxed{165cm^3}$$

$$3. m = (0.025L)(1.43g/L) = \boxed{0.036g}$$

$$25ml \times \frac{1L}{1000ml} = 0.025L$$

$$4. V = l \cdot w \cdot h = (25.0cm)(8.0cm)(10.4cm) = 2080cm^3$$

$$m = (2080cm^3)(19.3g/cm^3) = \boxed{40000g}$$

$$4.0 \times 10^4g$$

Remember
sig. fig adjust
at very end

$$6. V = \frac{28.73g}{7.29g/cm^3} = \boxed{3.94cm^3}$$

$$^{\circ}C + 273 = K$$

$$K - 273 = ^{\circ}C$$

$$1. 320K$$

$$4. 28^{\circ}C$$

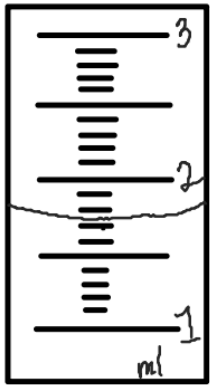
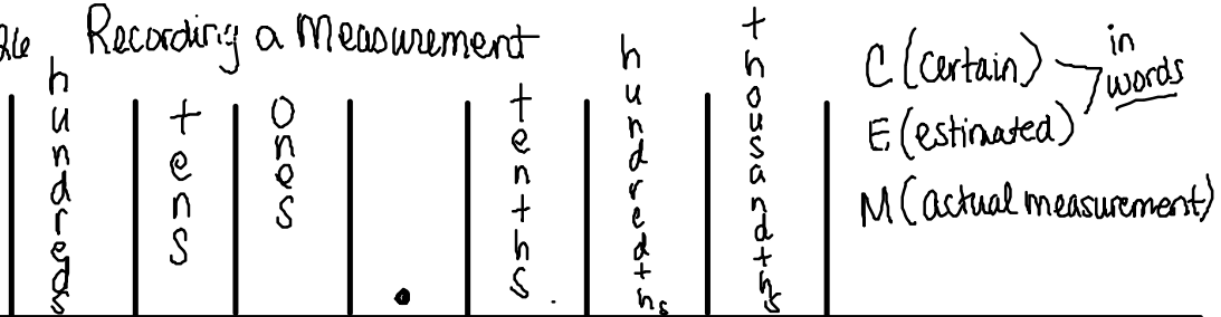
$$2. -61^{\circ}C$$

$$5. -241^{\circ}C$$

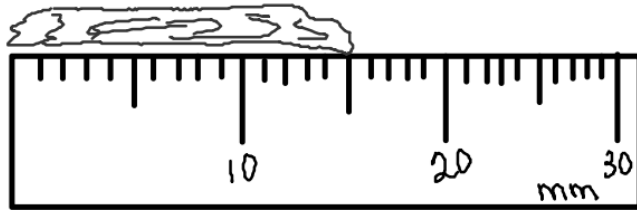
$$3. 253K$$

$$6. 147K$$

9/26 Recording a Measurement

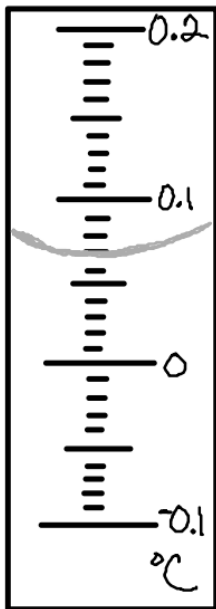


C = tenths
 E = hundredths
 m = 1.74 ml



C = ones
 E = tenths
 m = 15.1 mm

Estimated zero = on the line
 1-9 = between the lines



C = hundredths
 E = thousandths
 m = 0.070 °C

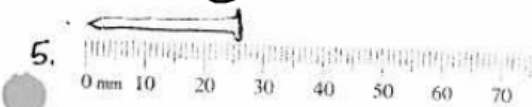
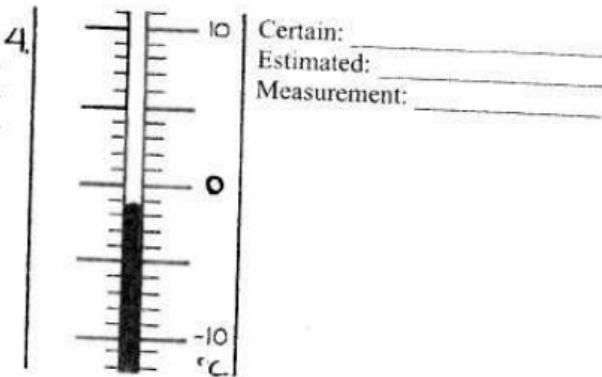
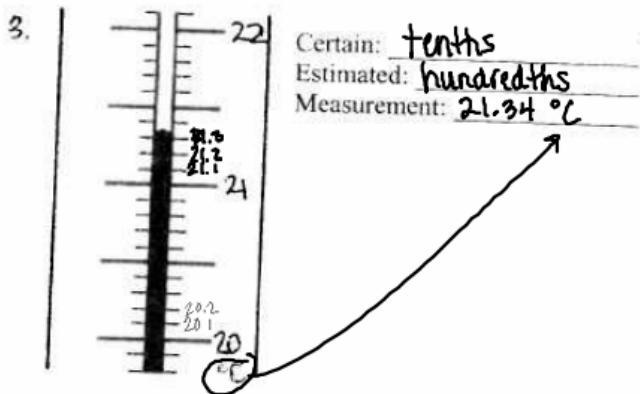
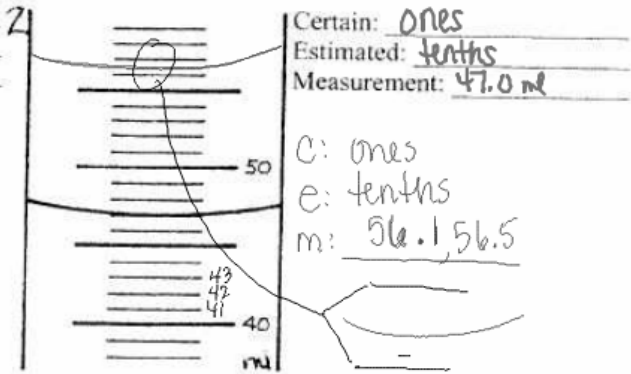
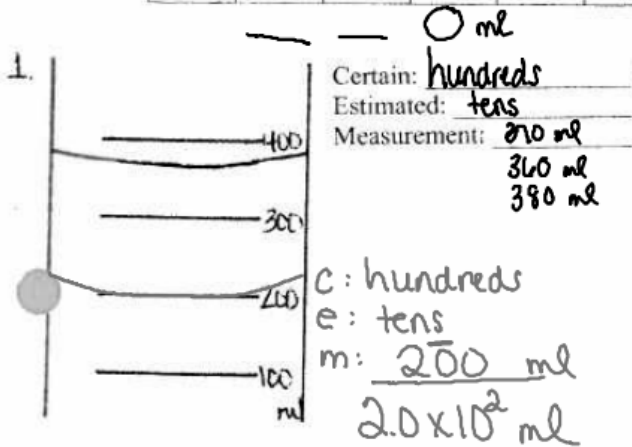
Record the place value for the digit of certainty and estimation (in words) for the following scales, and then record the actual measurement.

Place values:

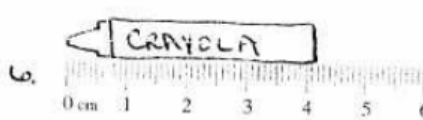
Thousands	Hundreds	Tens	Ones	Tenths	Hundredths	Thousandths
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Zero = perfectly on line

1-9 = between lines

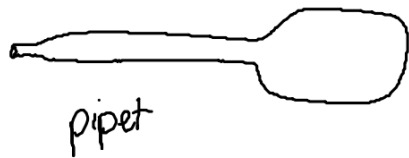


Certain: ones
 Estimated: tenths
 Measurement: 26.5 mm



Certain: tenths
 Estimated: hundredths
 Measurement: 4.20 cm

Lab:



pipet

mass . --- g



c: ones
e: tenths

m: _____