

CHM 110
Accuracy and Precision Practice Set

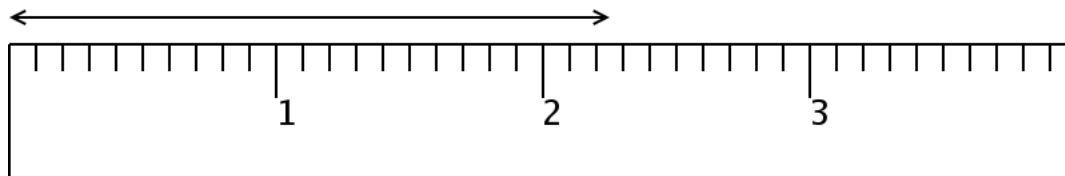
Determine the number of significant digits in each measurement.

13.805 mg	
14000 km	
2.70030 L	
4.0×10^{-3} mL	
0.00760 ft	
7050 cm ²	
1500. kg	
3.1420 in	
0.000077 m	
150 m ² /s	

Write the answer of each calculation to the appropriate number of significant figures. Assume all numbers have uncertainty unless you are told otherwise.

$\frac{13.47 \text{ g} + 3.14159 \text{ g}}{10.7 \text{ mL}} =$	
$4.65 \text{ m} \times 12.77 \text{ m} \times 0.00456 \text{ m} =$	
$130.788 \text{ g} - 0.45 \text{ g} =$	
$1.500 \text{ in} \times \frac{1 \text{ ft}}{12 \text{ in}} =$ Assume $\frac{1 \text{ ft}}{12 \text{ in}}$ is exact.	
$12.7675 \text{ g} \times \frac{\text{mol}}{18.02 \text{ g}} =$	

Read the scale below to the correct number of significant figures.



• _____ cm

Answer the questions.

Students Cliff and Sophia measure the mass of several samples of NaCl. Each NaCl sample actually weighs 5.00 grams. Each student measures their sample five times, and averages these weights to report their final answer. The measurements are listed below.

<i>Cliff</i>	<i>Sophia</i>
4.85 g	4.64 g
5.11 g	4.67 g
5.04 g	4.60 g
5.09 g	4.61 g
4.95 g	4.63 g

Cliff's average mass is 5.01g, and Sophia's average mass is 4.63g. Which student measured their mass with the greatest precision? Which student measured mass with the greatest accuracy? For the student with the poorest accuracy, suggest what could be done to improve their accuracy.