

Accuracy and Precision

Part I.

You will need to work in a group of 4 for this experiment. Each member of the group should do the measurements independently.

Accuracy is a measure of how close a result comes to the accepted answer. Precision is a measure of how close together several results are to each other.

Use the metric rulers to measure the length and width of your science desk and record below. Calculate the area of the desk and record.

Calculate your percent error and deviation below. Percent error is found using the formula:

$\% \text{Error} = (\text{what you got} - \text{accepted value}) * 100 / (\text{accepted value})$, the accepted values for the desk measurements are, length 122 cm and width is 60cm.

Calculate the deviation for each trial from the average by finding the absolute value of (observed area – average area) and record below.

	L (cm)	Deviation	% Error	W (cm)	Deviation	% Error	A (cm ²)	Deviation	% Error
Person A									
Person B									
Person C									
Person D									
Average									

Questions:

1. Does your data show precision? Explain
2. Does your data show accuracy? Explain
3. Look at your lab data; give an example of four area data points which would have high accuracy and high precision.
4. Look at your lab data; give an example of four area data points which would have low accuracy but high precision.
5. Look at your lab data; give an example of four area data points which would have low accuracy and low precision.
6. Does percent error measure accuracy or precision?
7. Does average deviation measure accuracy or precision?
8. What would enable better accuracy? Explain
9. How did your percent error for area compare to your percent error for length? Why were they different?