Prelab Questions

These questions need to be completed before entering the lab. Please show all workings.

Marker's Initials

Prelab 1

A rectangular object has length $L = (25.3 \pm 0.2)\ cm$, width $W = (18.6 \pm 0.5)\ cm$.

- What are the absolute uncertainties in length and width?

- Find the relative uncertainties in length and width.

Prelab 2

Given a set of length measurements: $60.4, 60.0, 61.1, 60.8, 60.6\ cm$.

- Find the average (mean) length

- Find the standard error (refer to the introductory pages of your Lab Workbook).

Laboratory Worksheet

Name and Student Number: _____

Partner: _____

Date: _____

QUESTION 1:

Table 1:

	Value	Units
Length		
Width		

QUESTION 2:

$\delta L =$

$\delta W =$

QUESTION 3:

QUESTION 4:

$L =$

$W =$

QUESTION 5:

$$\frac{\delta L}{L} =$$

$$\frac{\delta W}{W} =$$

QUESTION 6:

CHECKPOINT: Instructor Initial

QUESTION 7:

$$\boldsymbol{P} =$$

QUESTION 8:

$$\boldsymbol{\delta P} =$$

QUESTION 9:

$$\boldsymbol{P} =$$

QUESTION 10:

Table 2: **The perimeter of your hand measured by a string**

	Value	Uncertainty	Unit
Length			

QUESTION 11:

QUESTION 12:

$$\boldsymbol{A = L \times W =}$$

QUESTION 13:

$$\frac{\delta A}{A} =$$

QUESTION 14:

$$\delta A =$$

$$A =$$

graph paper is 1 cm × 1cm squares

Table 3:

	Value	Uncertainty	Unit
Area			

QUESTION 15:

QUESTION 16:

Table 4: Use software *Graphical Analysis* to do the calculations

L_i (cm)	W_i (cm)
$\bar{L} =$ (cm)	$\bar{W} =$ (cm)
$\sigma_L =$ (cm)	$\sigma_W =$ (cm)
N = (no unit)	N = (no unit)
$\sigma_{\bar{L}} = \frac{\sigma_L}{\sqrt{N}} =$ (cm)	$\sigma_{\bar{W}} = \frac{\sigma_W}{\sqrt{N}} =$ (cm)

QUESTION 17:

$\bar{L} =$

$\bar{W} =$

QUESTION 18:

QUESTION 19: