

COMPARING UNITS OF DISTANCE

PROBLEM

How do SI units and English units of distance compare?

INTRODUCTION

Scientists around the world use SI units (frequently referred to as the metric system) for measurement. In the United States, however, English units are still used for measurement. In this laboratory investigation, you will measure the lengths of some lines in SI units (centimeters) and in English units (inches). Then you will compare the measurements by graphing.

MATERIALS (per group)

English ruler, metric ruler

PROCEDURE

1. Measure each of the lines in the observation section below in both centimeters and inches. Record the results in the data table.
2. Prepare a graph on a separate sheet of paper. Set up suitable axes with inches on the X-axis and centimeters on the Y-axis. Plot the points from your data table on the next page.
3. Draw the best straight line through the points, and determine the slope. Record The result on the next page.

OBSERVATIONS

- A. _____
- B. _____
- C. _____
- D. _____
- E. _____
- F. _____
- G. _____
- H. _____
- I. _____
- J. _____

Data for Comparison of Inches and Centimeters

Line	Inches	Centimeters
A		
B		
C		
D		
E		
F		
G		
H		
I		
J		

Slope

CONCLUSIONS

1. Based on your graph, how many centimeters are in 6 inches?
2. Based on your graph, how many inches are in 10. cm?
3. What does the slope of this graph tell about the relationship between centimeters and inches?

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4. The accepted value for the number of centimeters per inch is 2.54 cm/in. What is your percentage error? (Do your calculations in the space below.)

Accepted value	_____
Observed value . . .	_____
Absolute error	_____
Percentage error . . .	_____

5. What are some sources of error?

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