

The Physics 500

Imagine a typical stock car race.

A typical race is 500 miles long (the 500 part),

BUT before the race there are the preliminaries –

During the preliminaries cars are on the track by themselves, going different distances at different times, even on different days.

The purpose is to determine starting order of the race.

Today we will be doing the preliminaries.

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Your task will be to run a minimum of five trials.

You may use any objects as long as you use them non destructively.

One of the objects must be your body.

You MAY NOT go outside but you may use hallways being described – listen carefully!

If you desire additional equipment, ask. If it is reasonable I'll get it for you.

Record all your data in an organized table.

You and your team mates must decide on and record a procedure.

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Now for an interesting part, determine the speed of your slowest object in miles per hour.

PLEASE ask me or someone else for assistance if you don't know how to do this.

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Sample Calculations

How did you do the calculations?

$$\text{speed} = \frac{\text{distance}}{\text{time}}$$

$$\text{speed} = \frac{35 \text{ feet}}{6.83 \text{ seconds}} \times \frac{1 \text{ mile}}{5280 \text{ feet}} \times \frac{60 \text{ seconds}}{1 \text{ minute}} \times \frac{60 \text{ minutes}}{1 \text{ hour}} = 3.49 \text{ mph}$$

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Summary:

1. What problems did you have?
2. What did you learn?
 - a. Did it matter where you started?
 - b. Did it matter when you started?
 - c. Even though you didn't all start at the same place or at the same time you were still able to compare speeds – Why?
3. The “real” purpose of this experiment was to begin to describe motion. How did you describe the motion (math formula and words)?

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4. What size of error did you have in your measurements?
5. What improvements can we make?
 - a. measuring time
 - b. measuring distance
 - c. getting more detailed data so we aren't just doing averages.

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