

Additional Measurement Practice

Terminology

1. Describe a situation where you could properly conclude that a set of data is precise but not accurate.
2. Describe a situation where you could properly conclude high accuracy but low precision.

Measurement

1. When measuring the length of a table, a student records 2.35 meters. What does the recorded value tell you about the markings on the measuring device?
2. Explain how systematic errors impact the uncertainty in a set of measurements.
3. Explain how random errors impact the uncertainty in a set of measurements.

Conversions

1. A high school cross country race is 5.0 km long. How many miles do they race? *1 mile = 1.61 km.*
2. Top sprinters can reach approximately 12.0 meters/second. What is the speed in miles/hour?

Scientific Notation

1. Write a number that is greater than 10^5 in both standard and scientific notation.
2. Write a number that is less than 10^{-5} in both standard and scientific notation.

Integrated Problem

1. A group of students is conducting a lab to determine the average speed of a cart as it moves along the ground. They measure the distance traveled by the cart every 2.0 seconds to be: 80.2 cm, 79 cm, 81.35 cm and 78.2 cm.
 - a. The students all use the same measuring device. What evidence do you have that the students made some mistakes in measuring the lengths?

 - b. Find the total distance traveled in the 8.0 seconds. Report the answer in cm.

 - c. Use the fact that average speed = distance / time to calculate the average speed of the cart in cm/s.

 - d. Convert the speed to km/min.

 - e. Rewrite the answer in scientific notation.