

Accuracy, Precision, and Percent Error Worksheet

- ① The length of an object is measured thrice and the values obtained are 22.5 cm, 22.7 cm, and 22.6 cm. Determine the average value of your measurement.

- ② If the true value of an object's length is 25.0 cm, and your measured value is 24.5 cm, calculate the percent accuracy.

- ③ If the accepted value for the density of water is 1.0 g/ml, and your measured value is 1.2 g/ml, calculate the percent error.

- ④ Imagine you are measuring the time it takes for a pendulum to complete 10 swings. Your measurements are as follows: 12.1 s, 12.0 s, 12.2 s, 11.9 s and 12.3 s. Calculate the average time and percent error compared to a known value of 11.8 s.

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Answers

- ① The length of an object is measured thrice and the values obtained are 22.5 cm, 22.7 cm, and 22.6 cm. Determine the average value of your measurement.

22.6 cm

- ② If the true value of an object's length is 25.0 cm, and your measured value is 24.5 cm, calculate the percent accuracy.

2%

- ③ If the accepted value for the density of water is 1.0 g/ml, and your measured value is 1.2 g/ml, calculate the percent error.

20%

- ④ Imagine you are measuring the time it takes for a pendulum to complete 10 swings. Your measurements are as follows: 12.1 s, 12.0 s, 12.2 s, 11.9 s and 12.3 s. Calculate the average time and percent error compared to a known value of 11.8 s.

Average time = 12.1s, Percent error = 2.54%