

Measurement Homework:

Complete each of the questions below. To submit your work, share this document with jwilliams@scarsdaleschools.org using the following file name:

SHS_CC_HW_Measurements_Lname



3 Self-Check Activity

For Questions 1–9, complete each statement by writing the correct word or words. If you need help, you can go online.

3.1 Using and Expressing Measurements

1. In writing numbers in scientific notation, the _____ is always a number greater than or equal to one and less than ten.
2. _____ is a measure of how close a measurement comes to the actual or true value of whatever is measured.
3. _____ is a measure of how close measurements in a series are to one another, irrespective of the actual value.
4. Measurements must always be reported to the correct number of _____.

3.2 Units of Measurement

5. Metric units are easy to convert because they are based on _____.
6. Scientists commonly use two equivalent units of temperature, the degree _____ and the kelvin.
7. The ratio of the mass of an object to its volume is _____.

3.3 Solving Conversion Problems

8. The two measurements used in a conversion factor are _____, which means that they equal the same thing.
9. _____ is a way to analyze and solve problems using the units of the measurements.

Review Key Equations

For each problem below, write the equation used to solve it.

- Miguel found the density of a piece of iron. The accepted value of the density of iron is 7.87 g/cm^3 .

- The piece of iron that Miguel measured had a mass of 51.1 g and a volume of 6.63 cm^3 . What did Miguel calculate to be the density of iron?

- What was the error?

- What was the percent error?

- Isabella measured the temperature of a gas as 24.3°C . To use this value in a calculation, she needed to convert the temperature to kelvins. What is this temperature in kelvins?

EXTENSION Solve each equation above.

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Review Vocabulary

Place the letter of each of the terms in the vocabulary box by each location in the equation where it is used.

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|-------------------------|-------------|-----------------------|
| a. conversion factor | d. gram | g. significant figure |
| b. density | e. kilogram | |
| c. dimensional analysis | f. liter | |

A box had a mass of 4.5 kg and a volume of 6.4 L . Calculate the density of the box to two decimal places in g/cm^3 .

$$\boxed{} = \frac{4.5 \text{ kg}}{6.4 \text{ L}} \times \frac{1000 \text{ g}}{1 \text{ kg}} \times \frac{1 \text{ L}}{1000 \text{ mL}} \times \frac{1 \text{ mL}}{1 \text{ cm}^3} = \frac{0.70 \text{ g}}{\text{cm}^3} \boxed{}$$