
Chapter 1 Pre-quiz/Review

The following material is covered on this quiz:

- Conversions with metric prefixes
- Dimensional Analysis
- Significant Figures
- Precision and Accuracy
- A few questions from the textbook on The Scientific Approach of Problem Solving

Convert the following.

You are graded as follows (1 pt correct work; 1 pt correct answer; 1 pt correct final unit). Consider significant figures and express all final answers in correct scientific notation.

- | | |
|----------------------------|---|
| 1) 20 meters to picometers | 4) 235.6 seconds to teraseconds |
| 2) 436 milligrams to grams | 5) 5.3×10^{-8} grams to micrograms |

Solve the following.

You are graded as follows (1 pt correct work; 1 pt correct answer; 1 pt correct final unit). Consider significant figures and express final answers in correct scientific notation when appropriate.

6) Larry is trying to shed a few pounds. If Larry runs 322 meters each day and keeps this up for two weeks (7 days per week), how many miles will Larry have run? Is this a relatively short or long distance to run?

7) It is 762 miles from here to Chicago. An obese physics teacher jogs at a rate of 5.0 miles every 20.0 minutes. How long would it take him to jog to Chicago if he jogged continuously and REALLY wanted to get there?



Determine the number of significant the following:

- 8) 2023 _____
- 9) 5.35×10^{-5} _____
- 10) 0.00145 _____
- 11) 45030 _____
- 12) 21 _____
- 13) 0.0010100 _____
- 14) 54.001 _____
- 15) 36.00 _____

Convert the following into or out of proper scientific notation

- 115.2 _____
- 1,000,000 _____
- 0.0015 _____
- 5.2×10^3 _____
- 6.340×10^{-5} _____
- 9.75×10^1 _____

Choose the best answer for each of the following multiple choice questions

- 16. The most appropriate SI unit for measuring the length of an automobile is the
 - a. micron.
 - b. kilometer.
 - c. meter.
 - d. nanometer

- 17. How does a scientist reduce the frequency of human error and minimize a lack of accuracy?
 - a. Take repeated measurements.
 - b. Use the same method of measurement.
 - c. Maintain instruments in good working order.
 - d. all of the above

- 18. Three values were obtained for the mass of a metal bar: 8.83 g; 8.84 g; 8.82 g. The known mass is 10.68 g. The values are
 - a. accurate.
 - b. precise.
 - c. both accurate and precise.
 - d. neither accurate nor precise.

- 19. According to the scientific method, why does a physicist make observations and collect data?
 - a. to decide which parts of a problem are important
 - b. to ask a question
 - c. to make an interpretation
 - d. to solve all problems

- 20. According to the scientific method, how does a physicist formulate and objectively test hypotheses?
 - a. by defending an opinion
 - b. by interpreting graphs
 - c. by experiments
 - d. by stating conclusions

