**Unit 1 Review: Metrics, Measurement, and Significant Figures**

***INSTRUCTIONS****: Answer each question thoroughly. Use complete sentences where appropriate and remember to use units and significant figure rules in each question! This unit corresponds to Chapters 1-2 in your textbook.*

1. Name the fundamental units (name *and* abbreviation) for each of the following measurements:
   1. Length:
   2. Time:
   3. Mass:
2. What determines the precision of a measurement?
3. How are base units and derived units related?
4. Define the following:
   1. Accuracy of a Data Set
   2. Precision of a Data Set
5. Four students measured the mass of a block of wood for an experiment. Determine the average mass from their measurements:

1.20 kg 1125 g 1.1 kg 1201.2 g

1. Re-write the following in standard notation:
   1. 1.75 x 104 g =
   2. 4.68 x 10-6 m =
2. Rewrite the following in scientific notation:
   1. 1500 mL =
   2. 197,400 m =
   3. 0.00000520 kg =
   4. 0.006001 g =
3. How many significant figures are in each of the following measurements?
   1. 23.456
   2. 0.00200
   3. 1000.01
   4. 1000
   5. 100.
   6. 100.0

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   6. 100.0
4. Determine the answers for the following addition & subtraction problems, reporting your answer to the appropriate number of sig figs:
   1. 263.36cm + 236cm =
   2. 258 + .0123 =
   3. 568L – 236.23L =
   4. 255.55 + 20.0 =
5. Determine the answers for the following Multiplication & division problems, reporting your answer to the appropriate number of sig figs:
   1. 50.5mm x 0.15mm =
   2. 135.90 x 0.1250 =
   3. 250.00m3 ÷ 25.00m =
   4. 0.305 ÷ 0.1050 =
6. Record the following conversion factors:
7. 1 km = cm
8. 1 s = ms
9. 1 W = kW
10. 1MV = V
11. Complete the following metric conversions. Report your answers in scientific notation.
12. 0.0145 s = ms
13. 537000 cm = km
14. 15.07 g = kg
15. 0.540 MW = W
16. A school bus full of students weighs 10638 lbs. What is the mass of this bus in kg?
17. The International Space Station orbits the Earth at an altitude of 400. km. What is this altitude in miles?
18. Washington State covers a land area of 66544 mi2. What is this land area in square kilometers?
19. You have been told that the highway speed of a car was 1.5 m/s. Is this a reasonable speed, or has someone done a conversion wrong? Show a conversion from 1.5 m/s to miles per hour using the factor label method to justify your answer.
20. Determine the answers for the following addition & subtraction problems, reporting your answer to the appropriate number of sig figs:
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