**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. 263.36 + 236 =
   2. 258 + .0123 =
   3. 568 – 236.23 =
   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. 50.5 x 0.15 =
   2. 135.90 x 0.1250 =
   3. 250.00 ÷ 25.00 =
   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. Washington State covers a land area of 66544 mi2. What is this land area in square kilometers?
18. 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.
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