NAME _____ DATE _____

Dimensional Analysis
(Factor-Label Method)

Practice Problems (Level 2)

Use dimensional analysis in solving each of the following problems.

1. Convert 15.9 mm to its equivalent measurement in km.

2. Convert 0.0982 hg to its equivalent measurement in cg.

3. Convert 13,455 g to its equivalent measurement in kg.

4. Convert a speed of 73.5 km/hr to its equivalent in m/s.

5. Convert a density of 4.52 g/mL to its equivalent in kg/L.

6. The density of iron is 7.86 g/mL. What volume of iron will have a mass of 50.00 g?

7. The density of helium gas is 0.178 g/L. What would be the mass of 375.0 mL of this gas?

8. A particle moving through a gas at a speed of 45.8 m/s strikes one wall of the container, bounces off and hits the other wall 25.0 cm away. How long did it take to go from one wall to the other?

9. A mole of sodium atoms contains 6.02×10^{23} atoms. How many moles would be needed in order to have 25.0×10^{23} atoms?

10. A mole of hydrogen atoms contains 6.02×10^{23} atoms. A section of outer space contains 25 atoms. How many moles of hydrogen is this?

11. The speed of light is 3.0×10^{10} cm/s. Express this speed in km/hr.

12. A sample of seawater contains 6.277 g of sodium chloride per liter of solution. How many mg of sodium chloride would be contained in 15.0 mL of this solution?

NAME _____ DATE _____

Dimensional Analysis
(Factor-Label Method)

Practice Problems (Level 1)

Use dimensional analysis in solving each of the following problems.

1. Convert 14 mm to its equivalent measurement in m.

2. Convert 35 kg to its equivalent measurement in g.

3. Convert 57 mL to its equivalent measurement in L.

4. Convert a speed of 88 m/s to its equivalent in cm/s.

5. Convert a density of 9.45 g/L to its equivalent in g/mL.

6. The density of mercury metal is 13.6 g/mL. What is the mass of 3.55 mL of the metal?

7. The density of lead is 11.3 g/mL. What is the mass of 45 mL of the metal?

8. The density of salt (sodium chloride) is 2.16 g/mL. What is the mass of 100.0 mL of this solid?

9. A particle moves through a gas at a speed of 15 km/s. How far will it move in 5.5 s?

10. A mole of copper contains 6.02×10^{23} atoms. How many atoms are there in 0.525 moles?

11. A solution of barium nitrate contains 61.2 g per liter of solution. How many grams of barium nitrate is contained in 2.75 L of this solution?

12. A sample of seawater contains 0.00245 g of sodium chloride per mL of solution. How much sodium chloride is contained in 50.0 mL of this solution?