

Name _____ Pd _____ Date _____

Dimensional Analysis Worksheet

Use the factor label method and show all work including proper units and significant figures.

1. The ladle at an iron foundry can hold 8.500×10^3 kg of molten iron; 646 metric tons of iron is needed to make rails. How many ladleful's of iron will it take to make 646 metric tons of iron? (1 metric ton = 1000 kg)
2. A baker uses 1.50 tsp of vanilla extract in each cake. How much vanilla extract in liters should the baker order to make 800 cakes? (1 tsp = 5 mL)
3. A person drinks eight glasses of water each day, and each glass contains 3.00×10^2 mL. How many liters of water will that person consume in a year? What is the mass of this volume of water in kilograms? (Assume one year has 365 days and the density of water is 1.00 kg/L.)
4. Express the following in the units indicated.
 - a. 2.97 kg/L as grams per cubic centimeter
 - b. 4128 g/dm² as kilograms per square centimeter
 - c. 5.27 g/cm³ as kilograms per cubic decimeter
 - d. 6.91 kg/m³ as milligrams per cubic millimeter
5. A water tank leaks water at the rate of 3.9 mL/h. If the tank is not repaired, what volume of water in liters will it leak in a year? Show your setup for solving this. Hint: Use one conversion factor to convert hours to days and another to convert days to years, and assume that one year has 365 days.