

Name:

Measurements and Calculations Worksheet #1

Mixed Metric and American Conversions: Show ALL work using dimensional analysis.

1. 4.305 liters to microliters
2. 3.80 km to meters
3. 3.88 miles to meters
4. 2.994 ounces to milligrams
5. 926 tons to Megagrams
6. How many centimeters are there in 788 feet?
7. Convert 6.775 yards to picometers.
8. Convert 0.0547 hectograms to ounces
9. How many centimeters are there in 51.004 miles?

**Worksheet #1, #2, and
Test Review
conversion factors that
might be helpful:**

1 mile = 5280 feet
1 inch = 2.54 cm
1 gram = 0.0353 ounces
2000 pounds = 1 ton
1 pound = 454 grams
1 yard = 3 feet
1 km = 0.621 miles
1 yard = 0.914 m
1 ton = 907.2 kg
1 ft = 12 in
1 gallon = 3.785 L
1 m = 39.37 inch
1 m³ = 35.31 ft³
1 grain = 0.00229 ounces
1 grain = 0.0648 grams
**Look to notes for all
metric conversions.**

Density: Show ALL work using dimensional analysis.

14. If an unknown solid weighs 84.0 grams and occupies 30.0 cm³ of space, what is its density?
15. What is the mass, in grams, of a liquid having a density of 1.50 g/ml and a volume of 3.5 liters?
16. What is the volume of a 200. gram sample of gold if its density is known to be 20.5 g/cm³?
17. A solid block of substance is 74.0 cm by 55.0 cm by 29.0 cm and it weighs 625 kg. Determine the density. Would it float in water? The density of water is 1 g/cm³. Show your work.
18. A gas has a volume of 7.0 liters and a mass of 444 grams. What is its density?
19. A certain liquid has a density of 0.855 g/mL. If the mass of a sample of the liquid 1.00 kg what is the volume in mL? (Don't forget to convert kg to grams before solving!)

Measurements and Calculations Worksheet #2

Dimensional Analysis (Exercising Problem Solving Skills): Show ALL work, using dimensional analysis, Report answers using the correct number of significant figures.

1. The record long jump is 349.5 inches. Convert this to meters.
2. While traveling in Europe a family determines they need to drive 12.0 kilometers to reach their destination. How many miles is that?
3. How many milligrams are there in a 5.00 grain aspirin tablet?
4. What is the volume, in mL, of 100. grams of mercury? Mercury has a density of 13.54 g/mL (which means 1mL=13.54 g).
5. Last year the US produced 1.84×10^{10} lbs of phosphoric acid to be used in the manufacture of fertilizer. The average cost of the acid is \$318/ton. What was the total value of the phosphoric acid produced?
6. If 387 marshmallows are in every box of Lucky Charms and Hector purchases 3 crates of Lucky Charms how many total marshmallows will he have? Each crate contains 12 boxes of Lucky Charms.
7. The Cookie Monster can eat 20 of his favorite cookies in one minute. The recipe used to make his favorite cookies uses 1 cup of sugar to make 12 cookies. If he eats cookies for 30 minutes straight how many cups of sugar will he consume?
8. In Crazy Town there is a different system used to keep track of time.
1 zip = 25 croaks
3 doons = 40 lux
2 zip = 65 lux
If Mady sleeps for 300 croaks how many doons is that?
9. After removing 68.1 kilograms of old copper tubing from air conditioning units Mark takes his load to a recycling yard. There he is paid \$2.50 per pound. How much money did he make?
 - b. If 1 mole copper = 63.45 grams and 6.02×10^{23} atoms = 1 mole, how many atoms of copper did Mark recycle?

Matter, Measurements and Calculations Test Review

Read over notes. Look over everything on the foldable review. Answer the following questions and report answers using the correct number of significant figures.

Solve the following problems:

2. How many significant figures are in each of the following?

- a. 1.03338000 b. 0.00003300 c. 133,555,800 d. 5.000001

3. Perform the following calculations:

- a. $58.5\text{g} + 34\text{g} =$ b. $3358\text{g} \div 7\text{mL} =$ c. $85.889\text{g} \div 28\text{cm}^3 =$

4. Solve the following:

a. The density of a solid is 2.88 g/cm^3 . The dimensions are 3.2 cm by 1.8 cm by 3.0 cm. What is the mass of the solid?

b. An irregularly-shaped solid is placed into a graduated cylinder filled with 25.8 mL of water and the level of the water rises to 33.9 mL. The mass is 5.88 g. What is the density of this solid?

d. A 35-mL sample of a liquid has a mass of 42.40 g. (a) What is the density of this liquid? (b) If placed in water will it sink or float?

5. Convert the following using dimensional analysis:

b. In Crazy Town the currency is rather strange $1\text{ furg} = 3\text{ botz}$, $5\text{ botz} = 0.15\text{ kerds}$, and $4.04\text{ kerds} = 1\text{ hutz}$. Looney Lucy has 25 furgs, what is this equivalent to in hutz?

c. The length of a paramecium is 0.025cm. What is the length in inches?

d. Jane ran 3444 m convert this to miles.

f. A snail crawls at 2.0 kilometers. How many miles did she crawl?

g. Tiger Woods is standing at the tee box for a 156 yard (par 3) hole. While trying to decide which club to use for his tee shot he wonders how far 156 yards is in centimeters. Can you calculate this for him?

7. Determine if the following is an element, compound, solution, or heterogeneous mixture.

- a. gold (Au) d. sodium acetate ($\text{NaC}_2\text{H}_3\text{O}_2$)
b. Hydrochloric Acid ($\text{HCl} \& \text{H}_2\text{O}$) e. oil and water
c. milk ($\text{C}_6\text{H}_{12}\text{O}_6 \& \text{H}_2\text{O} \& \text{C}_{50}\text{H}_{102}\text{O}_3\dots$)

8. Define extensive and intensive properties and give examples of each.

Look over Classification of Matter Activity and Extensive and Intensive Properties Activity.