

Problem Bank

Conversions: Chap. 2, Sec. 2

Converting Simple SI Units

- State the following measured quantities in the units indicated.
 - 5.2 cm of magnesium ribbon in millimeters
 - 0.049 kg of sulfur in grams
 - 1.60 mL of ethanol in microliters
 - 0.0025 g of vitamin A in micrograms
 - 0.020 kg of tin in milligrams
 - 3 kL of saline solution in liters
- State the following measured quantities in the units indicated.
 - 150 mg of aspirin in grams
 - 2500 mL of hydrochloric acid in liters
 - 0.5 g of sodium in kilograms
 - 55 L of carbon dioxide gas in kiloliters
 - 35 mm in centimeters
 - 8740 m in kilometers
 - 209 nm in millimeters
 - 500 000 μg in kilograms
- The greatest distance between Earth and the sun during Earth's revolution is 152 million kilometers. What is this distance in megameters?
- How many milliliters of water will it take to fill a 2.00 L bottle that already contains 1.87 L of water?
- A piece of copper wire is 150 cm long. How long is the wire in millimeters? How many 50 mm segments of wire can be cut from the length?
- The ladle at an iron foundry can hold 8500 kg of molten iron; 646 metric tons of iron are needed to make rails. How many ladlefuls of iron will it take to make 646 metric tons of iron? (1 metric ton = 1000 kg)

Converting Derived SI Units

- State the following measured quantities in the units indicated.
 - 310 000 cm^3 of concrete in cubic meters
 - 6.5 m^2 of steel sheet in square centimeters
 - 0.035 m^3 of chlorine gas in cubic centimeters
 - 0.49 cm^2 of copper in square millimeters
 - 1200 dm^3 of acetic acid solution in cubic meters
 - 87.5 mm^3 of actinium in cubic centimeters
 - 250 000 cm^2 of polyethylene sheet in square meters
- How many palisade cells from plant leaves would fit in a volume of 1.0 cm^3 of cells if the average volume of a palisade cell is 0.0147 mm^3 ?

Mixed Review

- Convert each of the following quantities to the required unit.
 - 12.75 Mm to kilometers
 - 277 cm to meters
 - 30 560 m^2 to hectares (1 ha = 10 000 m^2)
 - 81.9 cm^2 to square meters
 - 300 000 km to megameters
- Convert each of the following quantities to the required unit.
 - 0.62 km to meters
 - 3857 g to milligrams
 - 0.0036 mL to microliters
 - 0.342 metric tons to kg (1 metric ton = 1000 kg)
 - 68.71 kL to liters
- Convert each of the following quantities to the required unit.
 - 856 mg to kilograms
 - 1 210 000 μg to kilograms
 - 6598 μL to cubic centimeters (1 mL = 1 cm^3)
 - 80 600 nm to millimeters
 - 10.74 cm^3 to liters
- Convert each of the following quantities to the required unit.
 - 7.93 L to cubic centimeters
 - 0.0059 km to centimeters
 - 4.19 L to cubic decimeters
 - 7.48 m^2 to square centimeters
 - 0.197 m^3 to liters
- An automobile uses 0.05 mL of oil for each kilometer it is driven. How much oil in liters is consumed if the automobile is driven 20 000 km?
- How many microliters are there in a volume of 370 mm^3 of cobra venom?
- A baker uses 1.5 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)
- A person drinks eight glasses of water each day, and each glass contains 300 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.)
- At the equator Earth rotates with a velocity of about 465 m/s.