2.2 Mass, Volume, and Density Practice Problems

Rev 1, August 2019

Conversions

#1) Convert the metric density of iron **7.874 g/cm³**, into lbs/in^3:

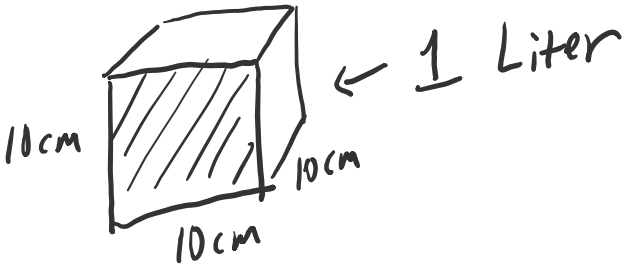
Given:

2.54 cm = 1 inch, 2.2lbs = 1 kg (on earth)

#2) Express **23.43 liters** as cubic inches.

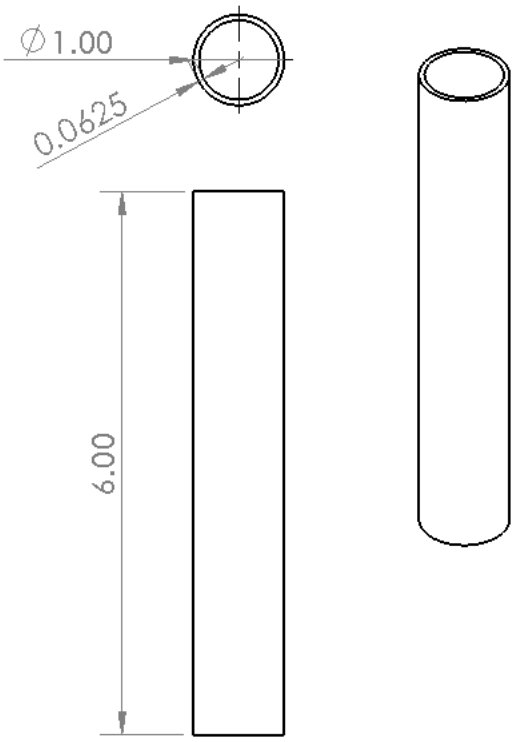
Given:

1 liter = 1000 cm^3, 2.54 cm = 1 in



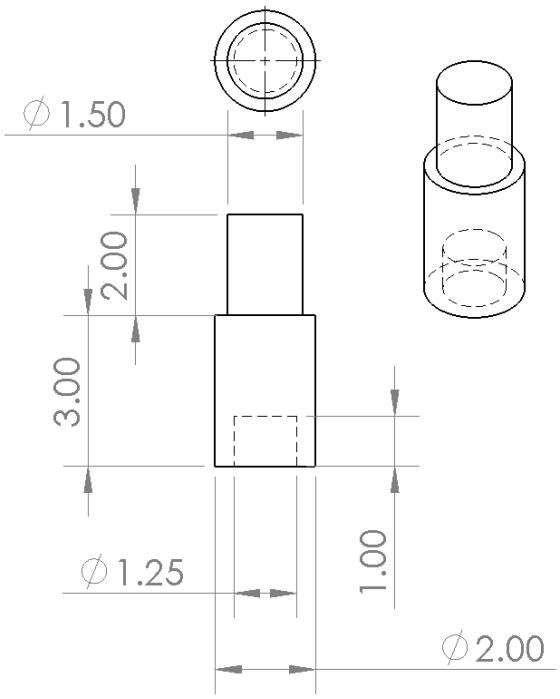
Volume from Geometry

#3) Find the volume of the following part given the drawing: (all dimensions are inches)

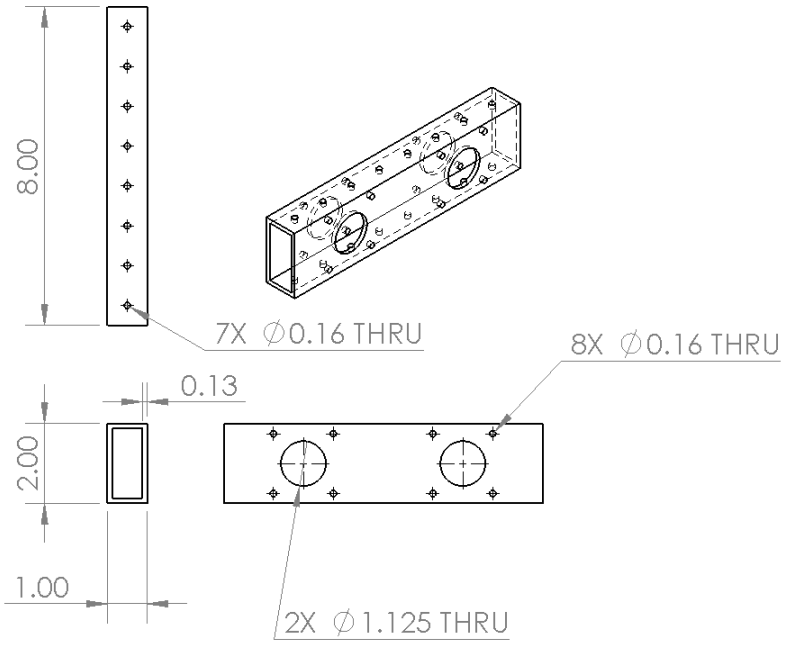


Mass & Density from Geometry

#4) The following part is **3.09 lb**s. Find the density in pounds per cubic inch.



#5) Find the mass of the following part. The part is 6061-T6 alloy aluminum with a density of **0.1 lbs per cubic inch**.



#6) An assembly on the robot uses a 12” long 1” square tube. How much more does a tube with 1/8” wall weigh compared to a 1/16” wall? The tube is 6061-T6 alloy aluminum with a density of 0.1 lbs/in^3.