

States of Matter

Chpt 13 rev 3

1. How big (diameter) does a small piston have to be in a jack if the larger piston is 5.6 cm in diameter and you have to lift a 2400 kg truck and the most force you can apply is 550 N?
2. You have a mass of 79 kg and a specific gravity of 0.92. a) What's your volume? B) What would your buoyancy force be if someone pulled you under water?
3. How much pressure does a height of 20.0 miles of air apply to you? (remember 1 mile = 1.61 km)
4. What is your apparent weight in water if you have a density of 1020 kg/m^3 and a volume of 0.087 m^3 ?...b) What is your weight?
5. What is the pressure on the bottom of a test tube if it has 5.5 cm of water and 2.5 cm of mercury (SG = 13.6, or $13,600 \text{ kg/m}^3$) in it?
6. What is the change in width and height of your steel entry door at home is it goes from -15° C in winter to 42° in summer. The door is 0.95 m wide and 2.20 m high?
7. How much gas spills out of a 12 gallon steel gas tank if the gas comes in at 15° C and heats to 40° C in your garage?
8. What is the final temperature if 125 g of ice at 0° C is put into 455 g of water at 88° C ?

