Solids / Fluids Review Worksheet

1. Calculate the pressure created by ocean water (density = 1.025 g/cm³), at a depth of 11.0 Km.

2. The pressure in a tightly closed building is the same as outside, 1.01 x 10⁵ Pa. The windows in this building are 1.2 m by 2.15 m. If a 23 m/s gust suddenly blows across the face of this building
   a. What pressure difference across these windows does the wind create?

   b. What force acts on each window?

3. A tennis ball has a density of 0.084 g/cm³ and a diameter of 3.8 cm. What force is required to submerge the ball in water?

4. Air pressure is 1x105 N/m², air density is 1.3 kg/m³. How fast must air be blown across the top of a straw rising 0.10 m above the water in a glass, to make the water rise half way up the straw?

5. At what depth will a submersible experience 10.0 N per square millimeter pressure?

6. In liquid A, a body floats with 9/10th of its volume immersed, while in liquid B it floats with 3/5th of its volume immersed. Compare the densities of the liquids.

7. Lauryn has sculpted an irregular shaped copper object that she would really like to find the volume of. If she suspends it from a spring scale it reads 10 N. When she suspends the mass in a container of seawater the spring scale reads 9.2 N. What must the volume of Lauryn's copper art be?

8. Mr. Bruening bought his wife a "gold" bracelet from a guy on the street for $50. If he drops it in a beaker of water and the volume raises 3002 cm³ and the mass is determined to be 29.67 kg, then is the jewelry gold? If it is not gold then what do you think it is made of?