**IB Physics**

**Group Quiz BCF**

Name

Show your work, round to the correct significant figures, circle your answers, and label them with units.

(1 atm = 1.013x105 Pa = 101.3 kPa = 14.7 psi = 760 Torr; 1 m3 = 1000 liters; pabsolute = pgauge + 1 atm; )

1. What is the density of a sphere that is 14.0 cm in diameter and has a mass of 18.2 kg?

2. What is the mass of a gold brick the size of a deck of cards?

(6.35 cm x 8.89 cm x 1.72 cm, ρ = 19.3x103 kgm-3)

3. What is the volume of a granite (ρ = 2750 kgm-3) that has a mass of 72.0 kg?

4. A rectangular hatch measures 34.0 cm x 45.0 cm. What is the pressure difference from one side to the other if there is a net force of 831 N acting on the hatch?

5. What is the force of 12.4 MPa acting on the end of a piston that is 2.30 cm in radius?

6. I need to reduce the pressure under my feet to 670. Pa. If I have a mass of 72.0 kg, what total area must my snowshoes have?

7. What is the gauge pressure at a depth of 10.0 m in water? (ρ = 1000. kgm-3)

8. At what depth in sea water is the gauge pressure 2000 psi? (ρ = 1029. kgm-3)

9. If you have a gauge pressure of 28,017 Pa at a depth of 21 cm in a fluid, what is its density?

10. A pressure tank 15.0 m tall is filled with water. There is a pressure of 2.10x105 Pa above the water, what is the absolute pressure at the bottom of the tank? (ρ = 1000. kgm-3)

11. If the same tank later has a pressure of 4.25x105 Pa at the bottom of it, what is the pressure above the water? (ρ = 1000. kgm-3)

When you are done, I will grade this. It might be good to do some of the practice problems, especially the unit conversion problems