# Y11 PHYSICS WORKSHEET 2

2.   (a)   The density of sea water is $1030 kg/m^3$

       (i)   Find the hydrostatic pressure due to sea water at a depth of 500m.

       (ii)   Calculate the force exerted on a $0.004 m^2$ glass piece located at a depth of 500m.

   (b)   A 640g metal cube with edge length of 4cm is placed on a table top.

       (i)   Calculate the density of the metal cube.

       (ii)   Find the pressure by the metal cube on the table top in Newton per square metre.

   (c)   An object weighs 5N in air and 4.7N when fully immersed in a liquid with density of $900 kg/m^3$.

       (i)   Find the upthrust by the liquid.

       (ii)   Find the weight of the fluid displaced.

       (iii)   Find the density of the object.

   (d)   A simplified version of a hydraulic lift is shown below which is filled with oil and has closely fitted pistons A $(0.2m^2)$ and B $(1.5m^2)$ at either ends.
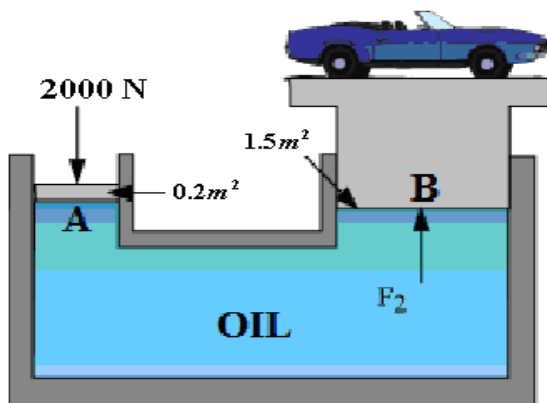
      A force of 2000 N is applied to piston A.

      (i) Find the pressure at piston A.

      (ii) Calculate the mass that can be lifted by piston B.

   (e)   Use the information given below to answer the questions.
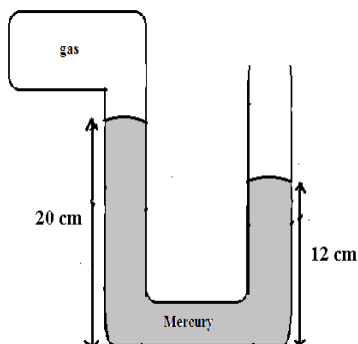
       (i)   What is the pressure at the open end of the manometer?

       (ii)   Find the pressure of the gas.