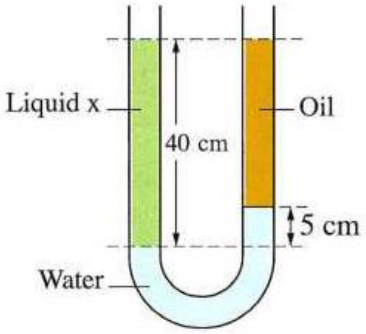
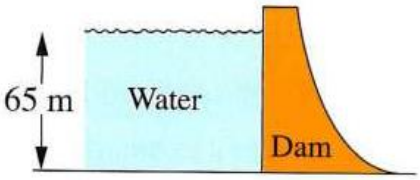
Name group

1-In the opposite figure, if the relative density of oil is 0.8, the relative density of liquid x is ……..



2-The opposite figure shows a dam that blocks water of depth 65 m, so the pressure of water at the bottom of the dam equals

(Where: $p_w = 10^3$ kg/m^3,g = 10 m/s^2)

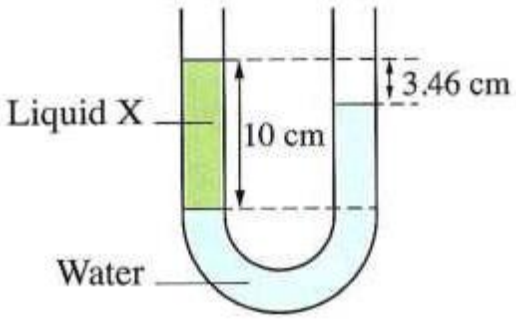


3-If the atmospheric pressure at the sea level equals 10^5 Pa, the value of the acting force due to the atmospheric pressure on the upper surface of a horizontal plate of length 15 cm and width 20 cm that is placed at sea level equals

a) 1000 N b)2000 N c)3000 N d) 30x10^6 N

4- An experimental Physics exam students were asked to measure and record the relative density of oil. One of the students has recorded an answer which is 0.8 kg/m^3 and another has recorded an answer of 0.8. Which of the two students gives the correct answer? And why?

5-In the opposite figure, the density of liquid X is .'..... .(Where: $p_w = 10^3$ kg/m3)



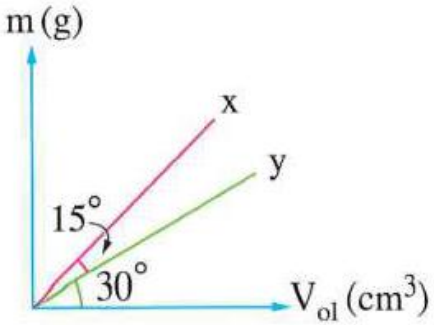
a) 1528 kg/m^3 b) 900 kg/m^3

c) 800kg/m^3 d) 654 kg/m^3

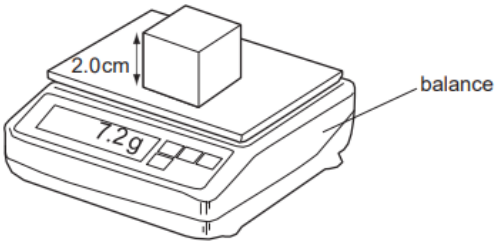
6-A graduated cylinder contains 40 cm^3 of glycerin whose density is 1.3 g/cm^3, then an amount of water of density 1 g.cm^{-3} is added to the glycerin, so that the density of the mixture becomes 1.1 g.cm^{-3}. If the volume of the liquids does not change after mixing them, the volume of the added water equals…….

a) 40 cm^3 b) 44 cm^3 c) 52 cm^3 d) 80 cm^3

7) Find the ratio between the density of x to the density of y ((ρ_x/ρ_y)



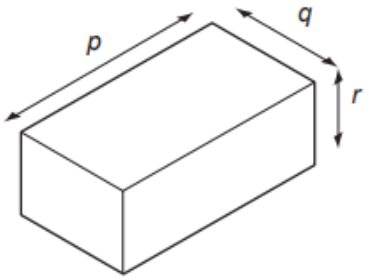
8) A cube of side 2.0cm is placed on a balance What is the density of the cube?



A 0.9) kg/m^3 B) 1.2g/cm^3

C) 1.8k g/m^3 D) 0.9g/cm^3

9-The diagram shows the dimensions of a rectangular block of metal of mass m. Which expression is used to calculate the density of the metal?



A) m × p × q **B) m × p × q × r**

c) m / (p × q) **d) m / (p × q × r)**

10-Why does a can of diet cola float in water, while a can of regular cola sinks?

A) The water is less dense than the diet cola.

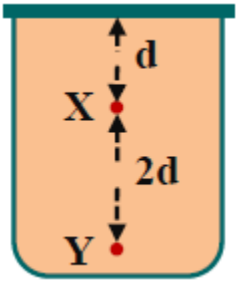
B) The diet cola can contains more metal.

C) The can of diet cola contains less dissolved solids.

11-A car of mass 1200 Kg has four tyres, each tyre has a contact area with ground that equals 80 cm^3 . Calcult the pressure due to the car on the ground.

(Where: g = 9.8 m/s^2)

12- The ratio of the pressure of the liquid at point X to its pressure at point Y is

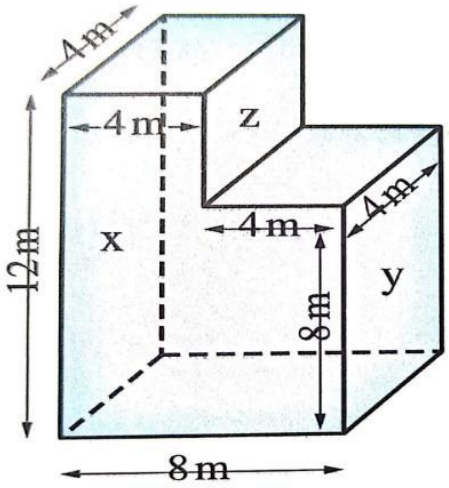


13- The opposite figure shows a reservoir which is filled with water. If the water is exposed to the atmospheric air pressure of 10^5 N/m^2, Calculate :

a) The total pressure on the bottom of the container.

b) The exerted force by the water pressure on face x.

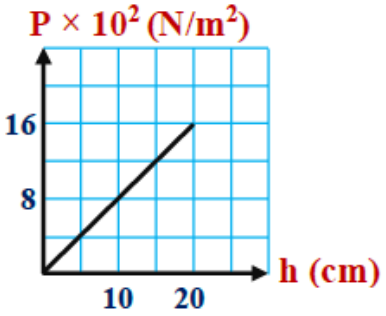
(where: $\rho_w = 10^3$ Kg/m^3, g = 9.8 m/s^2)



14- The diagram shows the relationship between the pressure of a liquid at several points inside it, and the depth of these points. If you know that the acceleration of free fall(g = 10 m/s^2).

The density of the liquid is equal to.....

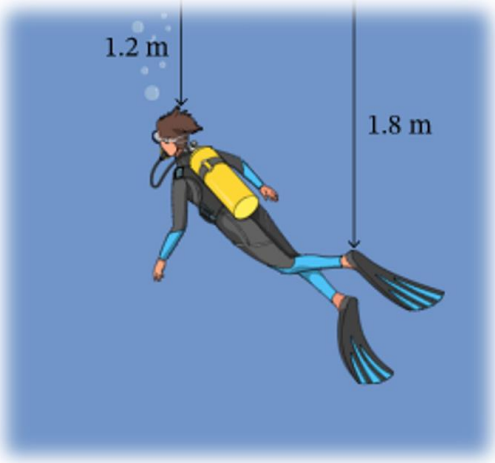
A) 800 Kg/m^3 B) 0.8 Kg/m^3 C) 8000 Kg/m^3 D) 0.16 Kg/m^3



15- A diver swims in water with a density of 1015 kg/m^3, as shown in the figure. What is the difference between the water pressure at the diver's head and at his feet?

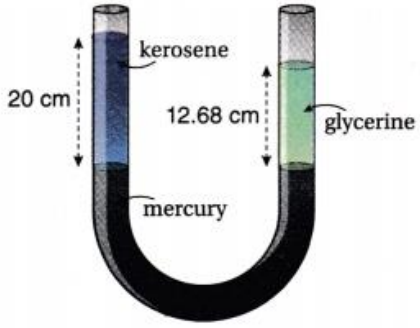
(A) 12180 Pa B) 18270 Pa

(C) 5968 Pa D) 9060 Pa



16- The cross-sections of the two limbs of a U-tube are $3cm^2$ &$1cm^2$ respectively. Keeping the tube vertical, some mercury is poured into it. Now 60 cm^3 of water is poured into the wider branch. To what height will the mercury rise in the narrow limb above the interference? The density of mercury = 13.6 $g \cdot cm^{-3}$.

17- A U-tube is partially filled with mercury. Kerosene is poured into one of its branch and glycerin into the other. It is observed that, when the height of the kerosene becomes 20 cm and that of glycerin becomes 12.68 cm, the levels of the mercury column in the two branches are at the same horizontal level. If the density of kerosene is 0.8 $g \cdot cm^{-3}$, then find that of glycerin.

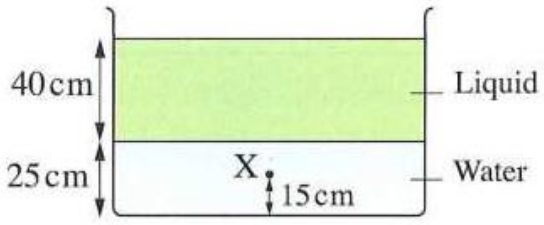


18-Within a Tornado the air pressure is about 80 KPa, the normal value of atmospheric pressure 100 KPa, suppose that such Tornado suddenly envelopes a house, the air pressure inside the house is normal with respect to the abnormally low pressure outside it:

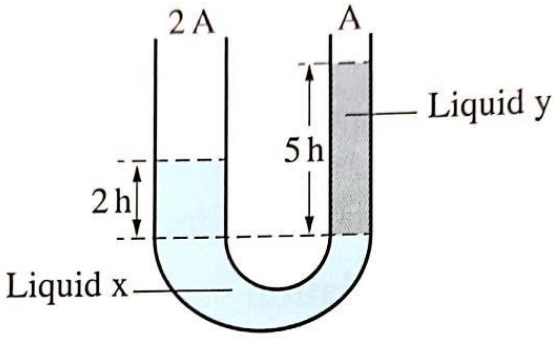
a-What is the net force acting on area (12 m $\times$ 3 m) from the wall of the house?

b- Is the house likely to suffer less damage if all windows and door are left open? Why?

19- In the opposite figure, if the total pressure at point X is 1.043×10^5 N/m^2, the density of the liquid equals(Where: $p_w = 10^3$ kg/m^3 ,Pa = 10^5 N/m2 , g = 10 m/s^2)



20- The opposite figure shows two liquids x , y which are at an equilibrium state in a U-shaped tube, so the ratio between the densi ρ_x/ρ_y)



a) $\frac{1}{2}$ b) $\frac{2}{5}$

c) $\frac{5}{2}$ d) 2

21-The opposite figure shows a glass tank containing water.

If the pressure of water at point A is P, so the height above the base of the tank at which the pressure of water at a point is 4 P is equal to …….

(a) 10 cm (b) 15 cm (c) 12.5 cm (d) 20 cm