

Ch. 10 #10

The only thing that might be weird is that they told you a pressure measured in units called millimeters of Mercury (mmHg). There's a table on Pg. 261 of the chapter that goes through a bunch of different conversions between different pressure units, and this is on there.

Ch. 10 #12

This one talks about a 'hydraulic lift', and we discussed these in class but didn't have time to do a diagram. Pg. 260 includes a diagram that may help you. It also might help to remind you to convert atmospheres into Pascals.

(Also, the answer given on your formula sheet is based on $P_{\text{atmospheric}} = 1.013 \times 10^5 \text{ Pa}$. If you use the standard value of simply 1.01×10^5 , you will get an answer of 10,788kg.)

Ch. 10 #17

Just keep in mind that gauge pressure only depends on the depth of the water, measured vertically.

Ch. 10 #20

On part A, it might help to remember that the volume of a cylinder is calculated by $\pi r^2 h$.

On part B, remember Pascal's principle. The pressure at the inside top of the barrel must equal the pressure at the bottom of the tube. So $P = \rho g h$.

Ch. 10 #25

If you haven't looked at the recorded version of Example #10, on our class webpage, please check it out. It will really help you on this problem, and maybe a couple others too.

Ch. 10 #28

You can start with the same idea that we've used a lot on similar problems, which is that $F_{\text{apparent}} = F_g - F_B$. As you work through the parts of that equation, you should realize that F_g and F_B both depend on the mass of the object. So then solve the equation for m .

Ch. 10 #33

Just remember that the specific gravity of a substance just means its density compared to the density of fresh water. So they've basically just told you the two densities are 917kg/m^3 and 1025kg/m^3 .

Ch. 10 #34

This one's tricky for a couple different reasons. First off, make sure you're thinking correctly that it's an equilibrium problem, for the moment *right before* it begins sinking. Secondly, you must remember that any lead that adds an additional downward force due to gravity will also experience an additional upward force due to buoyancy acting on the lead.