**Fluids: Quiz 2b**

/5

A large 9.0 m radius spherical balloon is filled with helium. The mass of the balloon bag and the little basket thingee that hangs underneath is 168 kg. How much additional weight (measured in N) can the balloon carry (assume it is at sea level)? ***Include a FBD! (Density of air is 1.2 kg/m3 and density of Helium is 0.179 kg/m3)***

Answer:

FBD:



The forces are: ***FB*** (buoyant force), ***Fg***(weight of bag and basket), ***FHe*** (weight of helium), and the lift (lifting force) ***FL*** (**weight that is to be lifted**).



Volume of balloon: 





Next we have to find the weight of the helium. We have to look up its density as well.





Now we can find the additional weight the balloon can lift.

