PHYS 201 Archimedes’ Principle Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Archimedes's principle - The buoyant force acting on a partially or fully submerged object in a fluid is equal to the weight of the fluid it displaces.

$F\_{b}=m\_{f}g$ or $F\_{b}=ρ\_{f}v\_{f}g$ Density of water = 1 g/cm3 = 1000 kg/m3.

Follow the following link and watch the video: <https://www.youtube.com/watch?v=eQsmq3Hu9HA>

1. Do the Horse problem from the video:
2. An iron casting with cavities has a mass of 550-g in air and a mass of 420-g in water. What is the total volume of all the cavities in the casting? The density of iron (that is, a sample with no cavities) is 7.87 g/cm3.

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| P2. 40.   | The density of ice is http://edugen.wileyplus.com/edugen/courses/crs6407/cutnell9780470879528/c11/math/math139.gif, and the density of seawater is http://edugen.wileyplus.com/edugen/courses/crs6407/cutnell9780470879528/c11/math/math488.gif. A swimming polar bear climbs onto a piece of floating ice that has a volume of http://edugen.wileyplus.com/edugen/courses/crs6407/cutnell9780470879528/c11/math/math623.gif. What is the weight of the heaviest bear that the ice can support without sinking completely beneath the water? |