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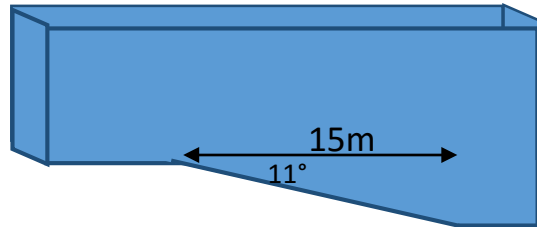
Date: _____

Fairfield AP Physics 2

Summer Fluids Problem Set

Use Chapter 3 of "AP Physics 2 Essentials" along with your initiative, creativity and perseverance to teach yourself enough to complete this problem set. For this class, Bozeman Science and Khan Academy videos are useful, as is HyperPhysics, but there are many useful resources that will be sufficient for you to master these concepts and skills.

1. A swimming pool has four perpendicular walls and a bottom that slopes downwards at an angle of 11° below the horizontal for a distance of 15 meters. By how much does the pressure at the bottom of the deep end differ from the pressure at the bottom of the shallow end? The water has a density of 1000kg/m^3 .



2. If a diver descends too quickly underwater, the pressure inside their inner ear may remain at atmospheric pressure while the pressure in the middle ear increases due to the depth. This pressure may cause the ear drum to burst. Pressure differences of only 35kPa can burst an ear drum. At what depth would this pressure be exerted? Sea water has a density of 1024kg/m^3 .
3. A duck floats on a lake of clean water ($\rho=1000\text{kg/m}^3$) with 25% of its body submerged. What is the average density of the duck?

