**Videos 10F - Hydrostatic Pressure Name**



Example – What is the gauge pressure 3800 m (12,500 ft) deep in the ocean where the wreck of the Titanic lies? Calculate it in Pa, PSI and atm. (ρ = 1.025x103 kg m-3)



Example – At what depth below fresh water is the absolute pressure 100. PSI? (Po = 1.013x105 Pa, ρ = 1.00x103 kg m-3)

Whiteboards:

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| 1. The water level in a water tower is 30. m above the point where a faucet is. What is the absolute pressure in Pa and PSI? (Po = 1.013x105 Pa, ρ = 1.00x103 kg m-3) What is the gauge pressure in PSI? P = Po + ρgh (4.0E5 Pa, 57 psi, 43 psi)  | 2. The density of air at STP is 1.29 kg m-3. What is the difference in air pressure between the top and the bottom of the 381 m tall Empire State Building in Pa? (assume the density is constant….) ΔP = ρghIf the pressure is 1.025x105 Pa at the bottom, what is the pressure at the top? (4.82E3 Pa, 0.977E5 Pa (9.77E4 Pa)) |
| 3. At what depth in mercury is the gauge pressure equal to one atmosphere? (ρ = 13.6x103 kg m-3) (answer in m and mm)P = ρgh1 atm = 1.013 x 105 Pa = 101.3 kPa = 760 Torr = 14.7 psi(0.759 m, 760 mm) |