The pressure at a point in water is 10 N/m squre .the depth below this point where the pressure becomes double is (given density of water = 10 cube kg/m cube ,g= 10 m/s square ?

Solution:

$p_1 = 10\frac{N}{m^2} - \text{pressure at the first point}$

$p_2 = 2p_1 - \text{pressure at the second point;}$

Formula for the pressure:

$p_1 = \rho g h_1$

$p_2 = \rho g h_2 = \rho g(h_1 + \Delta h) = \rho g h_1 + \rho g \Delta h$

$p_2 = 2p_1 \Longrightarrow$

$p_1 + \rho g \Delta h = 2p_1$

$p_1 = \rho g \Delta h$

$$\Delta h = \frac{p_1}{\rho g} = \frac{10\frac{N}{m^2}}{1000\frac{kg}{m^3} \cdot 10\frac{N}{kg}} = 1mm$$

Answer: the depth below this point where the pressure becomes double is 1mm.