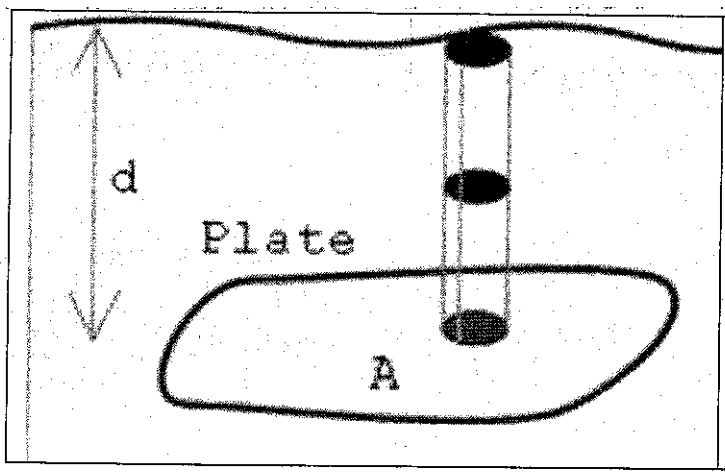

A = area of plate
d = distance from surface
ρ = density of fluid
g = acceleration of gravity

Volume of Fluid above plate = V = A x d
Mass of fluid above plate = m = ρA = ρAd
Force on plate = mg = ρgAd
Pressure = P = F/A = ρgd
In a fluid, pressure is same in all directions.

Example: Find Pressure at the bottom of a 2 meter swimming pool.

$P = \rho g d = 1000\ kg/m^3 \times 9.8\ m/sec^2 \times 2\ m$

$19600\ \frac{kg\ m}{sec^2} = Pa \quad Pascals$

A dam has the shape of a trapezoid. The height is *20*m, the width is *50*m at the top, and *30*m at the bottom. The water level is *4*m below the top of the dam. Find the force on the dam due to hydrostatic pressure.