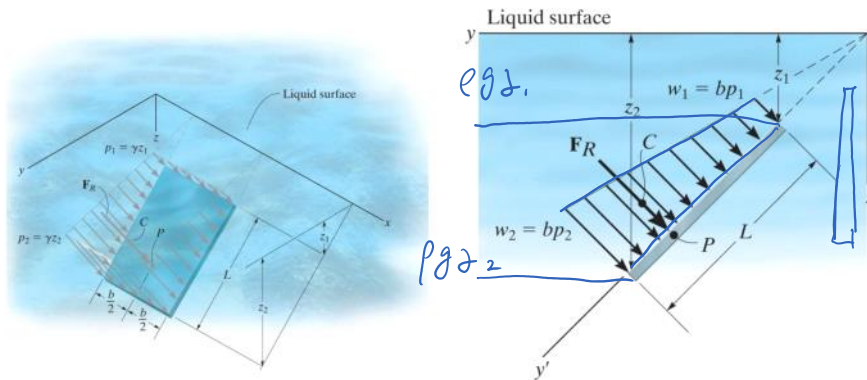


## Fluid Pressure

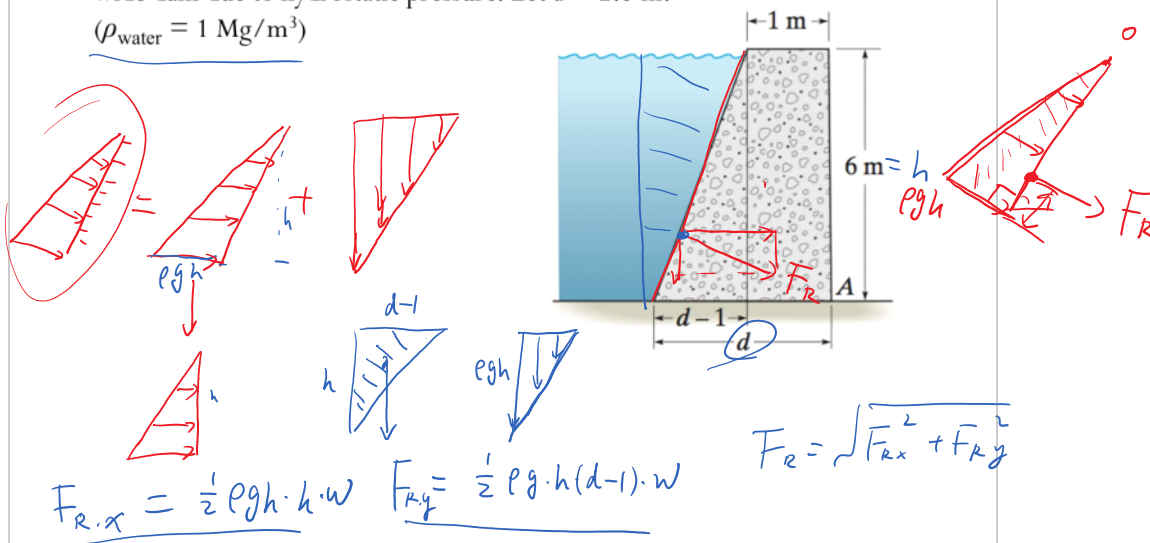
For an incompressible fluid at rest with mass density  $\rho$ , the pressure varies linearly with depth  $z$

*constant*



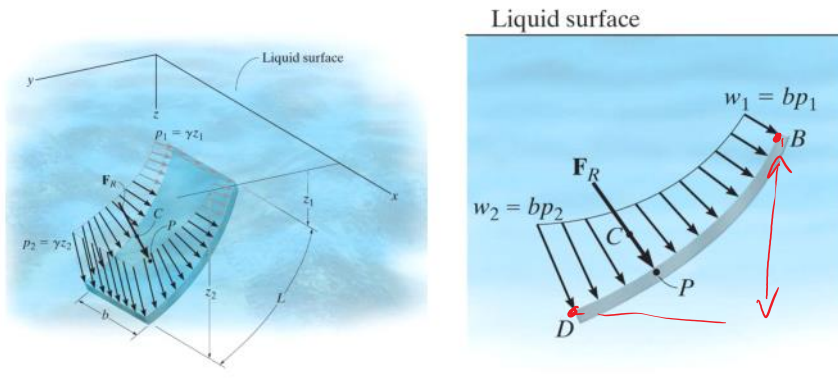
Determine the magnitude of the resultant force acting on the  $100\text{-m} = w$  wide dam due to hydrostatic pressure. Let  $d = 2.5\text{ m}$ .

( $\rho_{\text{water}} = 1\text{ Mg/m}^3$ )



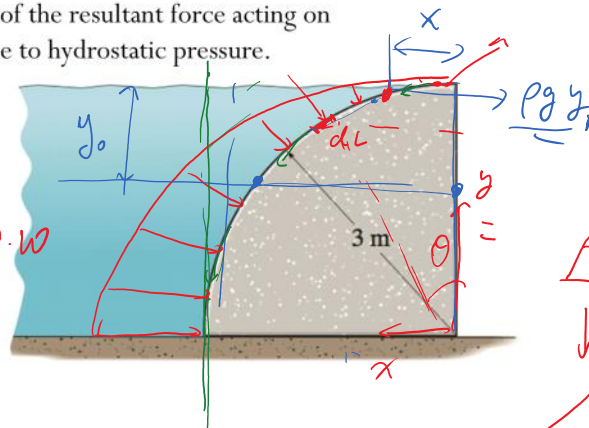
# Fluid Pressure

For an incompressible fluid at rest with <sup>constant</sup> mass density, the pressure varies linearly with depth  $z$



Determine the magnitude of the resultant force acting on the 10-m wide dam due to hydrostatic pressure.

( $\rho_{\text{water}} = 1 \text{ Mg/m}^3$ )

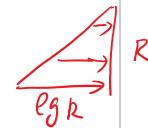


$$\Delta F = \rho g (R - R \cos \theta) \cdot R \cdot d\theta \cdot W$$

$$\Delta F_x =$$

$$\Delta F_y =$$

$$\int_0^{\pi/2} \frac{R}{\alpha}$$



$$F_{Rx} = \frac{1}{2} \rho g R \cdot R \cdot W$$

