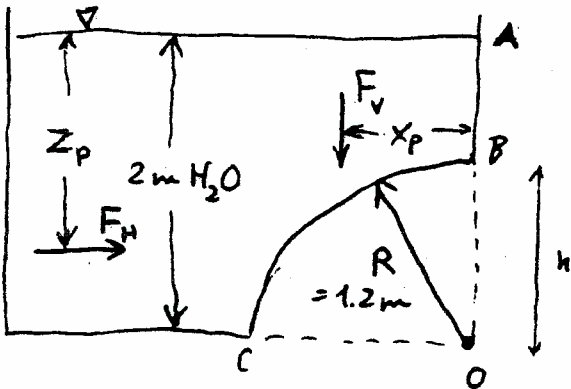


3.8.2

Eksempel (Oppgave ~~2.58~~, modifisert)



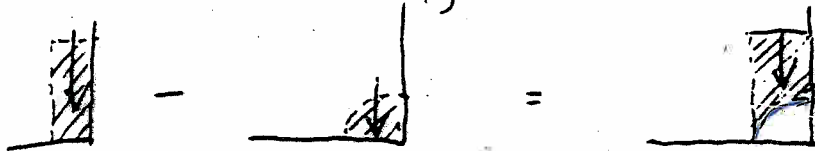
Figuren viser et bassengtverrsnitt. Finn størrelse & angrepspunkt av både horisontal og vertikal kraftkomponent på vegg BC. Anta bredde 1 m (inn i tabell).

$$F_H = \rho g h_c A = 9.81 \frac{\text{kN}}{\text{m}^3} \cdot (0.8 + 0.6) \text{ m} \cdot (1.2 \cdot 1) \text{ m}^2 = \underline{\underline{16.5 \text{ kN}}}$$

$$\begin{aligned} z_p &= y_c + \frac{I_c}{y_c A} = y_c + \frac{\frac{1}{12} b h^3}{y_c A} \\ &= H - \frac{1}{2} R + \frac{\frac{1}{12} b R^3}{(H - \frac{1}{2} R) b \cdot R} \\ &= (2 - 0.6 + \frac{1}{12} \frac{(1.2)^2}{1.2}) \text{ m} = \underline{\underline{1.48 \text{ m}}} \end{aligned}$$

$$\begin{aligned} F_V &= (bHR - \frac{1}{4} \pi bR^2) \rho g = bR(H - \frac{\pi}{4} R) \rho g \\ &= 1 \cdot 1.2 (2 - \frac{\pi}{4} \cdot 1.2) 10^3 \cdot 9.81 \text{ N} = \underline{\underline{12.4 \text{ kN}}} \end{aligned}$$

For å finne x_p , beregner vi moment om O av tyngden:



$$\rho g b H R \cdot \frac{1}{2} R - \rho g \frac{1}{4} \pi b R^2 \cdot \frac{4}{3\pi} R = \rho g (bHR - \frac{1}{4} \pi b R^2) x_p$$

Jra tabell
A.7, 1.574 738

$$x_p = \frac{\frac{1}{2} H - \frac{1}{4} R}{H - \frac{\pi}{4} R} R = \frac{1 - 0.4}{2 - \frac{\pi}{4} \cdot 1.2} 1.2 \text{ m} = \underline{\underline{0.68 \text{ m}}}$$