$$\frac{dP}{dz} = -\rho g$$

$$P_{\text{atm}} = \rho g h$$

$$\text{Ma} = \frac{V}{c}$$

$$c = \sqrt{\left(\frac{\partial P}{\partial \rho}\right)_s} = \sqrt{kRT}$$

$$F_R = (P_0 + \rho g h_C)A = P_C A = P_{\text{avg}} A$$

$$y_P = y_C + \frac{I_{xx,\,C}}{[y_C + P_0/(\rho g \sin\theta)]A}$$

$$\tau = \mu \frac{du}{dy}$$

$$F = \tau A = \mu A \frac{du}{dy}$$

$$F = \mu A \frac{V}{\ell}$$

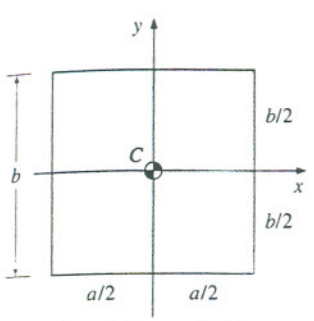
$$F_B = \rho_f g V$$

$$h = \frac{2\sigma_s}{\rho g R} \cos\phi$$

$$P_2 - P_1 = \frac{\rho\omega^2}{2}(r_2^2 - r_1^2) - \rho g(z_2 - z_1)$$

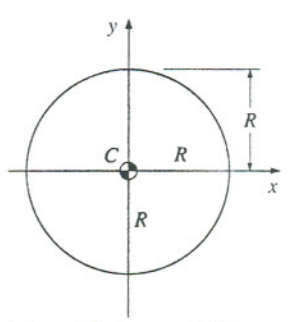
$$z_s = h_0 - \frac{\omega^2}{4g}(R^2 - 2r^2)$$

$$P = P_0 + \frac{\rho\omega^2}{2} r^2 - \rho g z$$



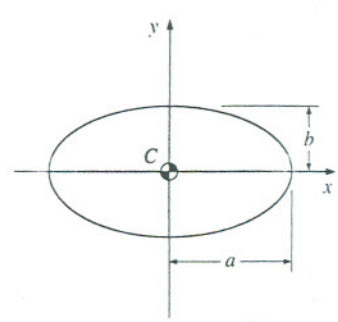

$A = ab,\ I_{xx,\,C} = ab^3/12$

(*a*) Rectangle



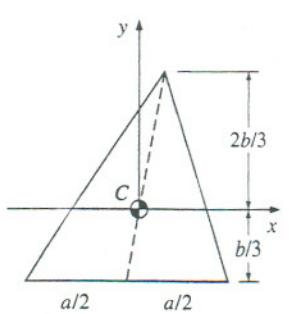

$A = \pi R^2,\ I_{xx,\,C} = \pi R^4/4$

(*b*) Circle



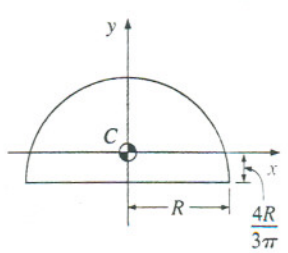

$A = \pi ab,\ I_{xx,\,C} = \pi ab^3/4$

(*c*) Ellipse



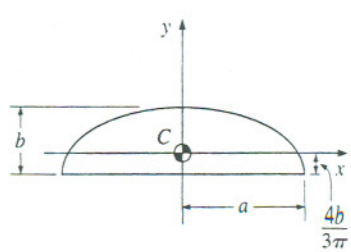

$A = ab/2,\ I_{xx,\,C} = ab^3/36$

(*d*) Triangle




$A = \pi R^2/2,\ I_{xx,\,C} = 0.109757R^4$

(*e*) Semicircle




$A = \pi ab/2,\ I_{xx,\,C} = 0.109757ab^3$

(*f*) Semiellipse