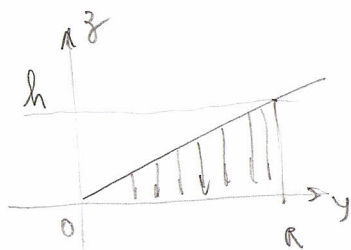
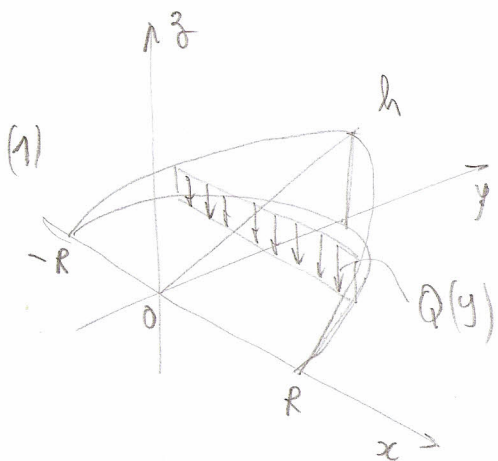


Carga distribuída numa superfície circular

Carga triangular



$$z = \frac{h}{R} y$$

Calculo de \bar{y}

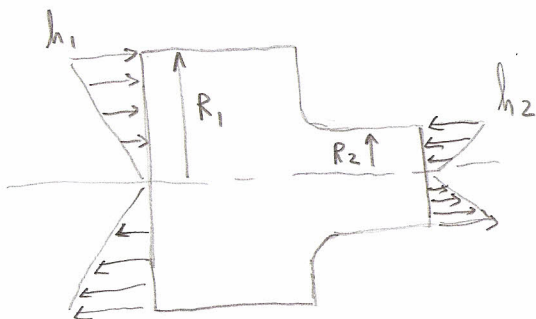
$$P_y = \int_0^R y Q(y) dy = 2 \frac{h}{R} \int_0^R y^2 \sqrt{R^2 - y^2} dy = \frac{\pi h R^3}{8}$$

$$\bar{y} = \frac{P_y}{P} \rightarrow P = \int_0^R Q(y) dy = 2 \frac{h}{R} \int_0^R y \sqrt{R^2 - y^2} dy = \frac{2 h R^2}{3}$$

Foça resultante

$$\Rightarrow \bar{y} = \frac{\pi h R^3}{8} \times \frac{3}{2 h R^2} = \frac{3 \pi R}{16}$$

Momento fletor num veio



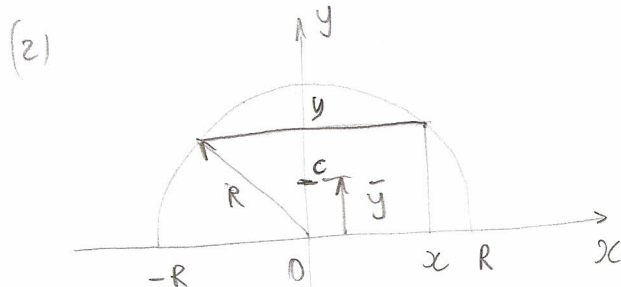
Calculo de h_1 ou h_2

Equilíbrio de momentos $\Rightarrow P_1 \times \bar{y}_1 = P_2 \times \bar{y}_2$

$$\Rightarrow \frac{2 h_1 R_1^2}{3} \times \frac{3 \pi R_1}{16} = \frac{2 h_2 R_2^2}{3} \times \frac{3 \pi R_2}{16}$$

$$\Rightarrow \boxed{h_1 R_1^3 = h_2 R_2^3}$$

Ponto de aplicação da força resultante \bar{y}



$$R^2 = x^2 + y^2 \Rightarrow x = \sqrt{R^2 - y^2}$$

$$(1) \text{ e } (2) \rightarrow Q(y) = 2x \times z = \frac{h}{R} y \times 2 \sqrt{R^2 - y^2}$$