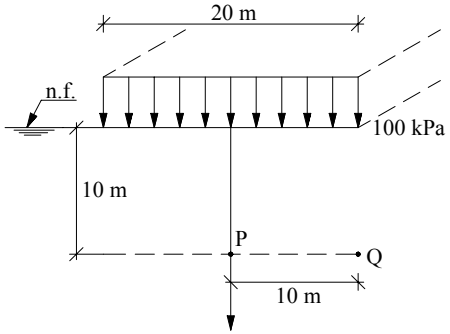


EST. REPOUSO

Igual ao de P

T. TOTAIS INCREMENTAIS

$\Delta\sigma_3(Q) = \Delta\sigma_v(Q) = 48kPa$

$\Delta\sigma_x(Q) = \Delta\sigma_h(Q) = 22{,}5kPa$

$\Delta\tau_{zx}(Q) = -25{,}5kPa$

$\Delta\tau_{zx}(Q) = 25{,}5kPa$

$\Delta u(Q) = 0$ (Hipótese neste Problema)

NOVO ESTADO DE TENSÃO

$\sigma_v(Q) = \sigma_z(Q) = 268kPa$

$u(Q) = 100kPa$

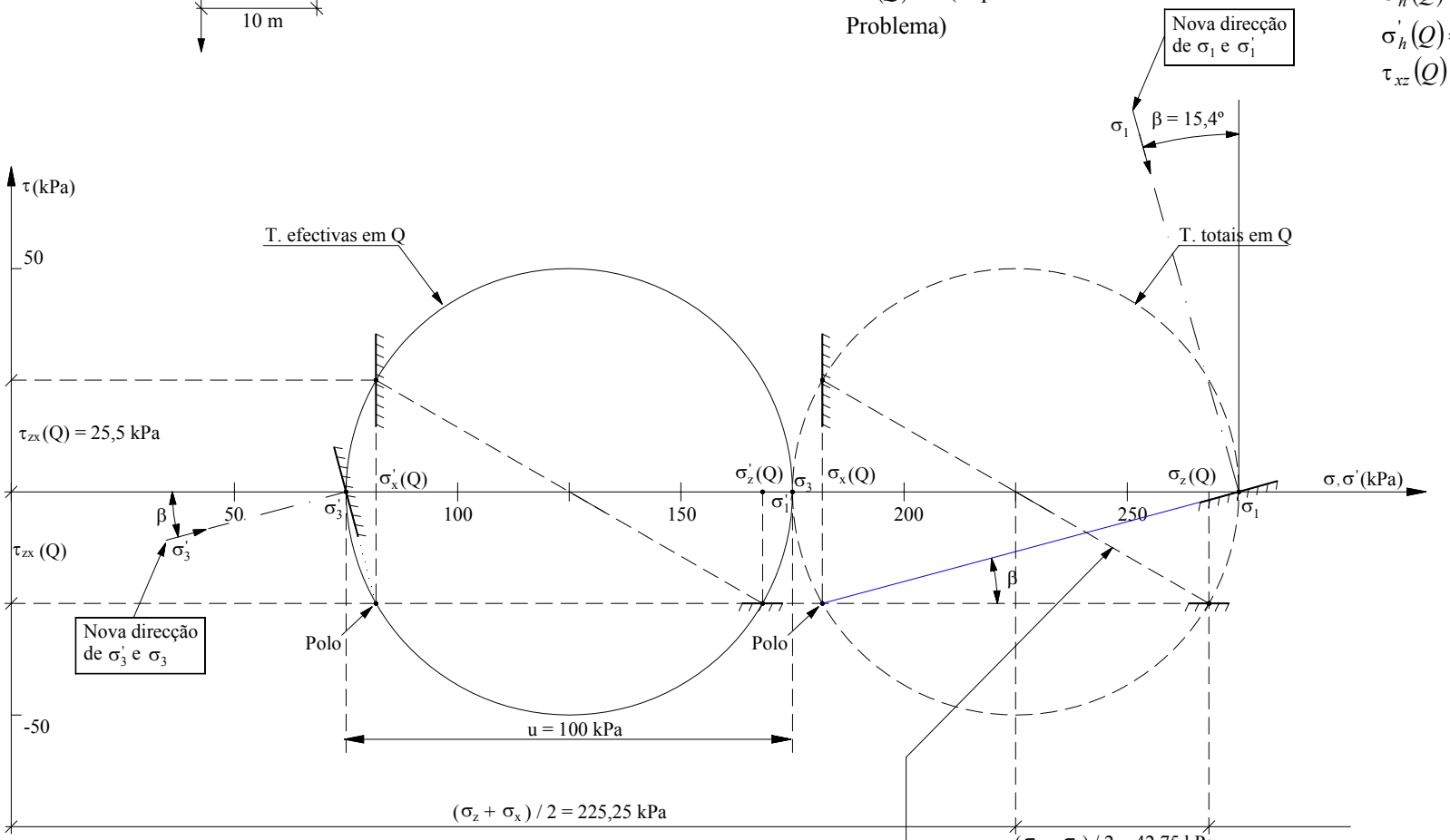
$\sigma'_v(Q) = \sigma'_z(Q) = 168kPa$

$\tau_{zx}(Q) = -25{,}5kPa$

$\sigma_h(Q) = \sigma_x(Q) = 182{,}5kPa$

$\sigma'_h(Q) = \sigma'_x(Q) = 82{,}5kPa$

$\tau_{xz}(Q) = 25{,}5kPa$

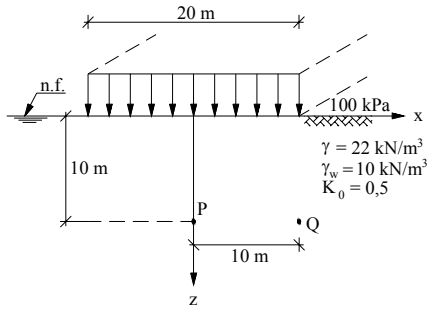


$$\sigma_1 = \frac{(\sigma_z + \sigma_x)}{2} + \text{Raio} = 275{,}03 \text{ kPa}$$

$$\sigma_3 = \frac{(\sigma_z + \sigma_x)}{2} - \text{Raio} = 175{,}47 \text{ kPa}$$

$$\beta = \text{arctg}\ \frac{\tau_{zx}}{\sigma_z - \sigma_x} = 15{,}4^\circ$$

$$\text{Raio} = \sqrt{\left[\frac{(\sigma_z - \sigma_x)}{2}\right]^2 + \tau_{zx}^2} = 49{,}78 \text{ kPa}$$



EST. REPOUSO

$\sigma_{v0} = 220kPa$

$u_0 = 100kPa$

$\sigma'_{v0} = 120kPa$

$\sigma'_{h0} = 60kPa$

$\sigma_{h0} = 160kPa$

T. TOTAIS INCREMENTAIS

$\Delta\sigma_z(P) = \Delta\sigma_v(P) = 82kPa$

$\Delta\sigma_x(P) = \Delta\sigma_h(P) = 18kPa$

$\Delta\tau_{zx}(P) = 0$

$\Delta u(P) = 0$ (Hipótese neste Problema)

NOVO ESTADO DE TENSÃO

$\sigma_v(P) = 302kPa$

$u(P) = 100kPa$

$\sigma'_v(P) = 202kPa$

$\sigma'_h(P) = 78kPa$

$\sigma_h(P) = 178kPa$