

①

$$F_{Rx} = \sum F_x = -30 \sin 30^\circ + 26 \left(\frac{5}{13} \right) = -5 \text{ kN}$$

$$F_{Ry} = \sum F_y = -30 \cos 30^\circ - 26 \left(\frac{12}{13} \right) = -50 \text{ kN}$$

$$\vec{F}_R = (-5 \hat{i} + 50 \hat{j}) \text{ kN}$$

$$(M_R)_A = \sum M_A + \sum M = M_A^{F_{30}} + M_A^{F_{26}} + M = 30 \sin 30^\circ (0.3) - 30 \cos 30^\circ (2) - 26 \left(\frac{5}{13} \right) (0.3) - 26 \left(\frac{12}{13} \right) (6) - 45 = 4.5 - 51.96 - 3 - 144 - 45 = -239.5 \text{ kN}\cdot\text{m}$$

$$\therefore (M_R)_A = 239.5 \text{ kN}\cdot\text{m}$$

②

• Equações de equilíbrio

$$+\circlearrowleft \sum M_c = 0 \Rightarrow -T_{AD} \cos \theta (250 \sin 30^\circ) + T_{AD} \sin \theta (250 \cos 30^\circ) - 500 (200 \sin 30^\circ) = 0$$

$$-62.5 T_{AD} + 187.5 T_{AD} - 50000 = 0$$

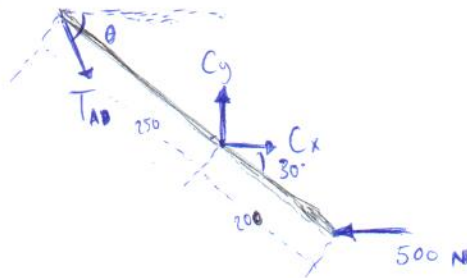
$$\therefore T_{AD} = 400 \text{ N}$$

$$+\rightarrow \sum F_x = 0 \rightarrow T_{AD} \cos \theta + C_x - 500 = 0$$

$$\therefore C_x = 300 \text{ N}$$

$$+\uparrow \sum F_y = 0 \rightarrow -T_{AD} \sin \theta + C_y = 0$$

$$\therefore C_y = 346.4 \text{ N}$$



$$250 \cos 30^\circ = 216.5 \text{ mm}$$



$$250 + 250 \sin 30^\circ = 375$$

$$\therefore \theta = \tan^{-1} \left(\frac{375}{216.5} \right) = 60^\circ$$