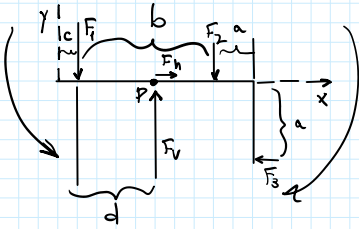


ESERCIZIO 13



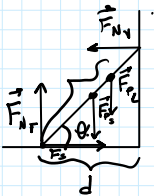
<u>DAT1</u>	<u>INC</u>
$a = 2 \text{ m}$	$F_h = ?$
$b = 3 \text{ m}$	$F_v = ?$
$c = 1 \text{ m}$	$d = ?$
$F_1 = 20 \text{ N}$	
$F_2 = 10 \text{ N}$	
$F_3 = 5,0 \text{ N}$	

$$\begin{cases} X: F_1 - F_3 = 0 \\ Y: F_V - F_1 - F_2 = 0 \\ Z: F_1 d - F_3 a - F_2 \left(\frac{b}{3} + \frac{c}{2} \right) = 0 \end{cases}$$

$$F_n = F_3 \rightarrow F_n = 8,0 \text{ N}$$

$$F_v = F_1 + F_2 \rightarrow F_v = 30\text{ N}$$

ESERCIZIO 11



DATI INL

$d = 2,5 \text{ mm}$ $\phi?$

$L_s = 5 \text{ mm}$

$M_L = 75 \text{ kg} = 735,95 \text{ N}$

$m_s = 10 \text{ kg} = 98,1 \text{ N}$

$d_t = 3,0 \text{ mm}$

$$\begin{cases} x: F_S - F_{NV} = 0 \\ y: F_{NT} - F_S - F_{PL} = 0 \\ z: -F_S \frac{L_S}{2} \cos \theta - F_{PL} d \cos \theta + F_{NL} \sin \theta \end{cases} \quad \theta = \arctan \frac{b}{d} = \arctan \frac{\sqrt{L_S^2 + d^2}}{d} = 60^\circ$$

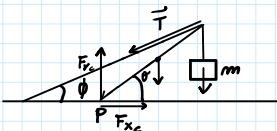
$$F_{NV} = \frac{(F_{Ps} \frac{L_s}{2} + F_{Pd} L)}{L_s \sin \theta} = 2,8 \cdot 10^2 \text{ N}$$

$$F_3 = F_{NV} \rightarrow 2,6 \cdot 10^2 \text{ N}$$

$$F_{NT} = F_{PS} + F_{PL} = 735,75 + 98,1 = 833,85 \text{ N}$$

$$\varphi_{\text{Tot}} = \arctg \frac{8,3 \cdot 10^2}{2,8 \cdot 10^2} = 71^\circ$$

ESERCIZIO 19



DATI

$m = 225 \text{ kg}$
 $H = 45 \text{ kg}$
 $\phi = 30^\circ$
 $\theta = 45^\circ$

INC

$T = ?$
 $F_{Y_c} = ?$
 $F_{X_c} = ?$

DIGRESSIONE SU PRODOTTO VETTORIALE

$$|\vec{c}| = |\vec{a}| |\vec{b}| \sin \theta$$

noi vediamo
questo perché, il rim
tra α e di θ è

$$\alpha = 180^\circ - 90^\circ - \theta = 45^\circ \quad \beta = 180^\circ - \phi - (180^\circ - \theta) \rightarrow \beta = \theta - \phi = 15^\circ$$

$$\tau: \tau_{P_1} + \tau_{P_2} + \tau_T = 0$$

$$-L \sin \alpha - \frac{L}{2} M_g \sin \alpha + L T \sin \beta = 0$$

$$T = \frac{g \sin \alpha (m + \frac{M}{2})}{\sin \beta} = 6633 \text{ N}$$

$$X: T_{\infty} \phi = N_4 = 5.74 \cdot 10^3 \text{ N}$$

ap↓

ma' scriviamo
questo peso, il sin
tra α e di θ è
uguale.

$$T = \frac{g \sin \alpha (m + \frac{M}{2})}{\sin \beta} = 6633 \text{ N}$$

$$X: T \cos \phi = N_x = 5,74 \cdot 10^3 \text{ N}$$

$$Y: -Mg - mg - T \sin \phi = N_y =$$

PROBLEMI DI GRAVITAZIONE

PROBLEMA ESEMPIO

