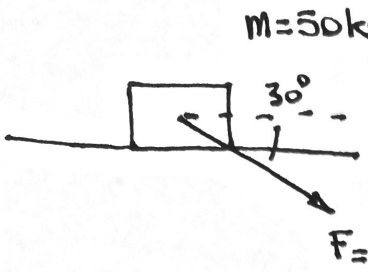
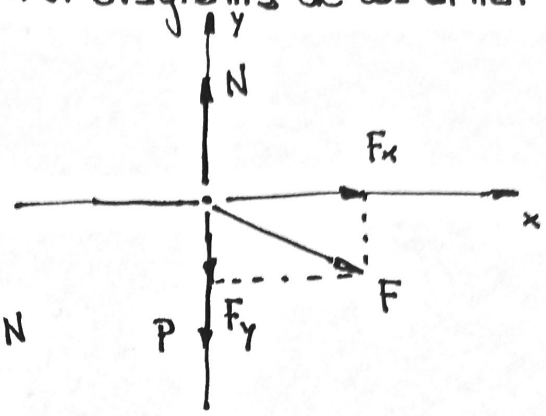
14.



Fem el diagrama de cos aïllat:



$F_x = F\cos 30° = 80\cos 30° = 69{,}3\ N$

$F_y = F\sin 30° = 80\sin 30° = 40\ N$

Equacions de Newton:

en x: $F_x = ma$

en y: $N - P - F_y = 0$ ← No hi ha moviment en y ⇒ $a_y = 0$

$$a = \frac{F_x}{m} = \frac{69.3}{50} = \boxed{1.39\ m/s^2}$$

La força que fa el terra és N:

$$N = P + F_y = mg + F_y = 50 \cdot 9{,}81 + 40 = \boxed{530{,}5\ N}$$

Partint del repòs $v_0 = 0$

$$\Delta x = \frac{1}{2} a t^2$$

$$v = at$$

quan ha recorregut $\Delta x = 6m \Rightarrow t = \sqrt{\frac{2\Delta x}{a}} = \sqrt{\frac{2 \cdot 6}{1{,}39}} = 2{,}94\ s.$

per tant $v = a \cdot t = 1{,}39 \cdot 2.94 = \boxed{4.08\ m/s}$