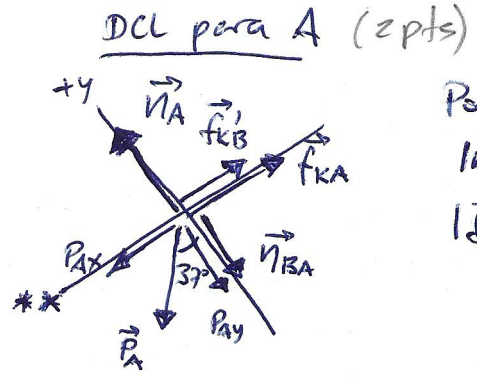
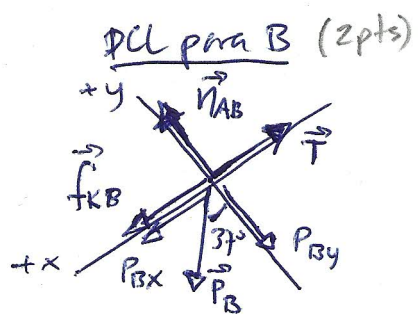
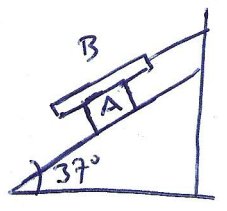


1



Por 3ra ley de N.  
 $|\vec{N}_{AB}| = |\vec{N}_{BA}|$   
 $|\vec{f}_{KB}| = |\vec{f}_{KB}'|$

2da ley de Newton

Para B:

eje y:  $\sum F_{yB} = m_B a_{yB}$   
 $|\vec{N}_{AB}| = m_B g \cos 37$   
 eje x:  $\sum F_{xB} = m_B a_{xB}$   
 $-|\vec{T}| + |\vec{f}_{KB}| + m_B g \sin 37 = 0$   
 $|\vec{T}| = \mu_k m_B g \cos 37 + m_B g \sin 37$

Para A:

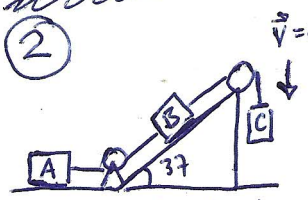
eje y:  $\sum F_{yA} = m_A a_{yA}$   
 $|\vec{N}_A| - |\vec{N}_{AB}| - m_A g \cos 37 = 0$   
 $|\vec{N}_A| = m_B g \cos 37 + m_A g \cos 37$   
 $|\vec{N}_A| = (m_A + m_B) g \cos 37$

eje x:  $\sum F_{xA} = m_A a_{xA}$   
 $m_A g \sin 37 - |\vec{f}_{KA}| - |\vec{f}_{KB}| = 0$   
 $m_A g \sin 37 = \mu_k |\vec{N}_A| + \mu_k |\vec{N}_{AB}|$   
 $m_A g \sin 37 = \mu_k (m_A + 2m_B) g \cos 37$   
 $\mu_k = \frac{m_A}{(m_A + 2m_B)} \tan 37$

$|\vec{T}| = m_B g (\mu_k \cos 37 + \sin 37)$   
 $|\vec{T}| = (1kg)(9,8m/s^2)(0,452 \cos 37 + \sin 37) = 9,4N$  (2pts)

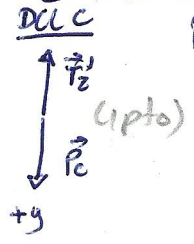
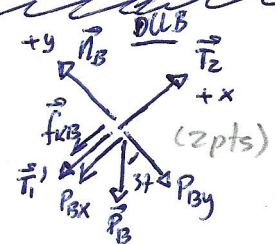
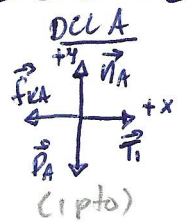
$\mu_k = \frac{3kg}{5kg} \tan 37 = 0,452$  (2pts)

2



2da ley de Newton

Para A: eje y:  $|\vec{N}_A| = |\vec{P}_A|$   
 eje x:  $|\vec{T}| = \mu_k |\vec{P}_A|$   
 $|\vec{T}| = 0,35(25N) = 8,75N$



Por 3ra ley de N.

$|\vec{T}_1| = |\vec{T}_2|$   
 $|\vec{T}_2| = |\vec{T}_2'|$

Para B:

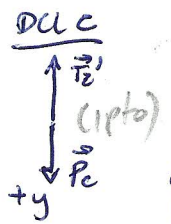
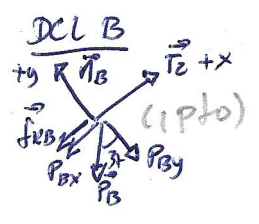
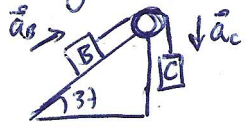
eje y:  $|\vec{N}_B| = |\vec{P}_B| \cos 37$   
 eje x:  $|\vec{T}_2| = |\vec{T}_1| + \mu_k |\vec{P}_B| \cos 37 + |\vec{P}_B| \sin 37$

Para C:

eje y:  $|\vec{P}_C| = |\vec{T}_2|$

$|\vec{T}_2| = 8,75N + (0,35)(25N) \cos 37 + (25N) \sin 37 = 31N = |\vec{T}_2|$  (2pts)

Wego



2da ley de Newton

Para B: eje y:  $|\vec{N}_B| = |\vec{P}_B| \cos 37$   
 eje x:  $|\vec{T}_2| - \mu_k |\vec{N}_B| - |\vec{P}_B| \sin 37 = m_B a_B$   
 $|\vec{T}_2| - \mu_k |\vec{P}_B| \cos 37 - |\vec{P}_B| \sin 37 = m_B a_B$   
 $|\vec{T}_2| - |\vec{P}_B| (\mu_k \cos 37 + \sin 37) = m_B a_B$  (1pto)

Para C:

eje y:  $-|\vec{T}_2| + |\vec{P}_C| = m_C a_C$  (1pto)

Sumamos ecuaciones:

$|\vec{T}_2| - |\vec{P}_B| (\mu_k \cos 37 + \sin 37) = m_B a_B$   
 $-|\vec{T}_2| + |\vec{P}_C| = m_C a_C$   
 $|\vec{P}_C| - |\vec{P}_B| (\mu_k \cos 37 + \sin 37) = (m_B + m_C) a_B$

$a_B = \frac{|\vec{P}_C| - |\vec{P}_B| (\mu_k \cos 37 + \sin 37)}{(m_B + m_C)} = 1,6 m/s^2$  (1pto)

recede que  
 $|\vec{P}_B| = m_B g$   
 $|\vec{P}_C| = m_C g$

Hallamos ahora  $|\vec{T}_2|$ :  
 $|\vec{T}_2| = |\vec{P}_C| - m_C a_B$   
 $= 31N - 5,06N$   
 $= 25,94N$  (1pto)