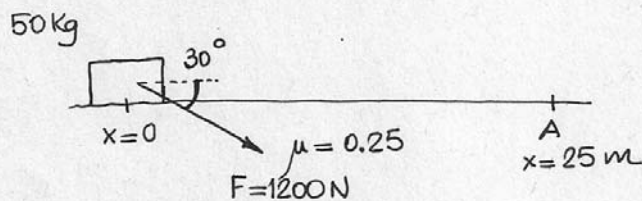


EXAM: DYNAMICS

① A body is moving according to the description below. Initially the body is moving at 4 m/s (to the right). Determine:

- the value of the normal and friction forces
- the acceleration
- the velocity of the body at point "A"



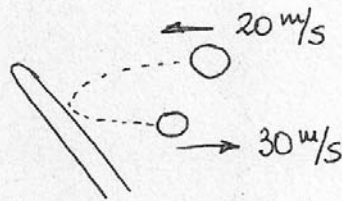
② A body is rotating due to a centripetal force $F_c = 120\text{ N}$. The mass of the body is 5 kg and the radius of the path is $R = 80\text{ cm}$. Determine:

- the centripetal acceleration
- the velocities v and ω (rad/s and rpm)
- the frequency and the period of the motion
- the number of revolutions performed in 10 minutes.



③ A ball is hit and its direction changes, as indicated in the picture. The mass of the ball is 125 g and the average force applied is 300 N. Determine

- the change in the linear momentum of the ball
- the time in which both bodies are in contact



④ Determine the values of the tensions T_1 and T_2 if the body remains still.

