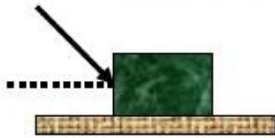


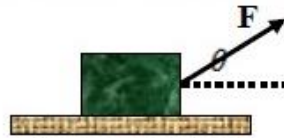
Home Work 3

Motion Laws

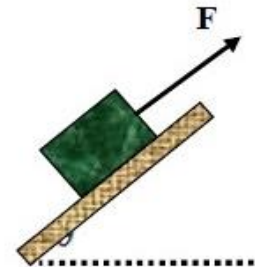
1- Calculate the normal force in each case



Case1



Case2

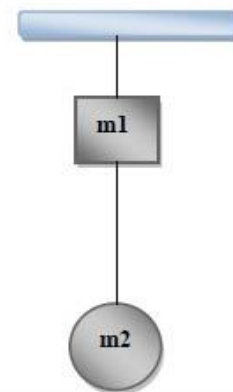


Case3

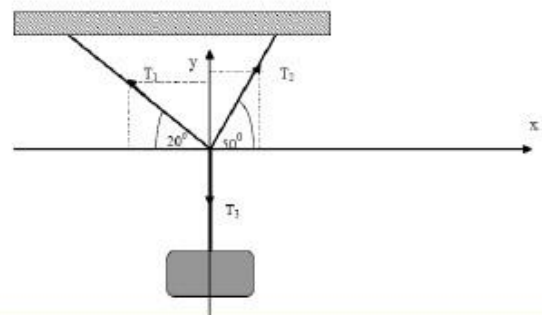
2- crate of mass 10 kg placed on a long frictionless horizontal table is pulled horizontally by a constant force F . It is found to move 5 m in first two seconds. Find the magnitude of F .

3- A bus moving at 80 km/h is to be stopped by applying brakes in the next 14.0 m. If the bus weighs 100,000 kg, what average force must be applied on it?

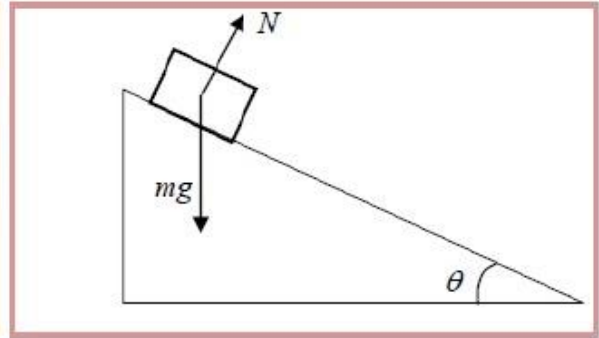
5- Two masses the first one is m_1 of 0.5 kg is suspended from the ceiling by a light string. m_2 is suspended from the first m_1 through another string 1.5kg are suspended as shown below. Find the tensions in the two strings.



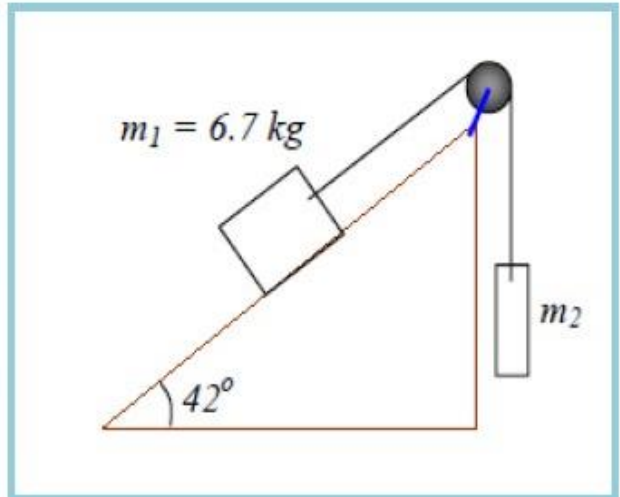
6- A block of mass 70 kg is supported by two wires attached to the ceiling, as shown in the figure below. Find the tensions in the wires



7- A small block which slides on an inclined plane. Find the acceleration of the block if the surface is frictionless



8- Two blocks are connected by a string, as shown in the figure. The system is in equilibrium. The inclined plane makes an angle of 42° with the horizontal. Assuming that the plane is frictionless, what is the mass of the hanging block?

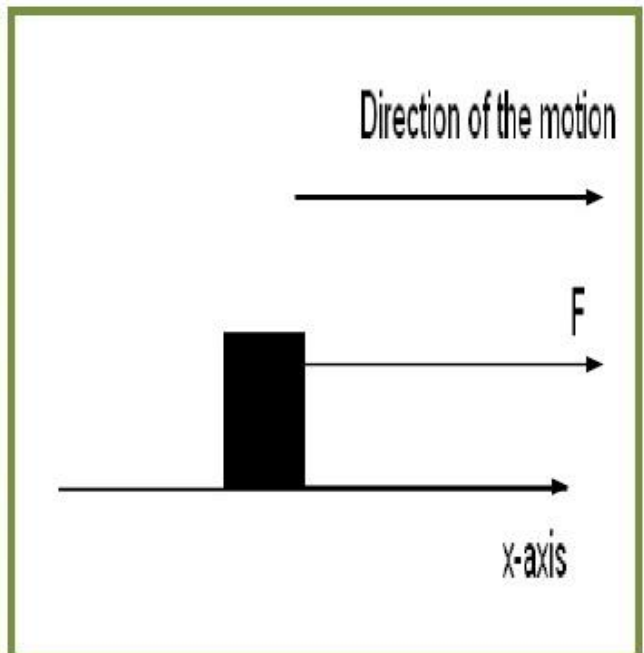


9- A 10-Kg wooden crate is being pushed horizontally with a force of 160N. The coefficient of the kinetic force (μ_k) is 0.2.

A- Show the free body diagram of the crate.

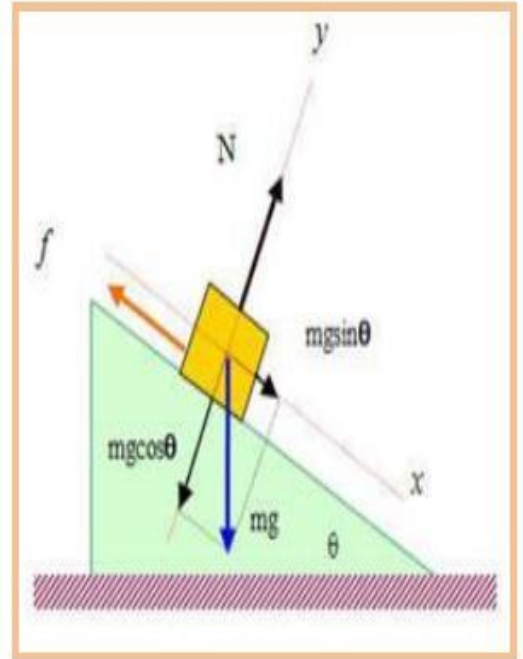
B- Find the normal force.

C- Find the friction force.



10- A 3kg block starts from rest at the top of 30° incline and slides a distance of 2m down the incline in 1.5 sec. Find

- The acceleration of the block,
- The friction force acting on the block,
- The speed of the block after it has slid 2m.



A 9.00-kg hanging weight is connected by a string over a pulley to a 5.00-kg block that is sliding on a flat table (Fig.). If the coefficient of kinetic friction is 0.200, find the tension in the string.

