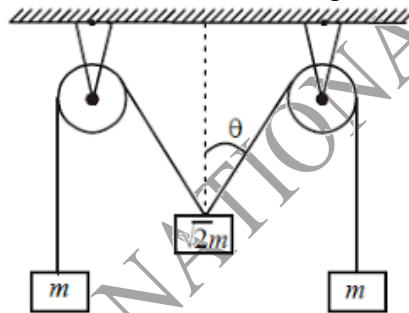
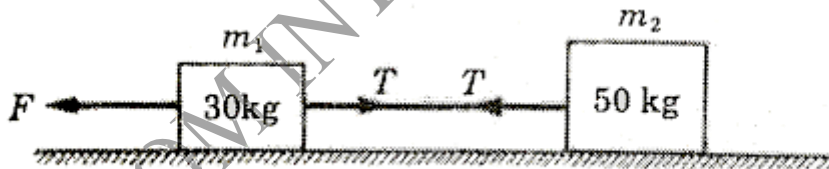


**FREEDOM INTERNATIONAL SCHOOL**  
**WORKSHEET**  
**PHYSICS**  
**CLASS XI**  
**LAWS OF MOTION**

1. The distance travelled by a body is directly proportional to time. Is any external force acting on it?
2. Why is it easier to pull a lawn roller than to push it? Explain.
3. Why does a heavy rifle not kick as strongly as light rifle using the same cartridge?
4. What is the need for banking a road?
5. A scooterist moving with a speed of 36 km/h sees a child standing in the middle of the road. He applies the brakes and brings the scooter to rest in 5 s just in time to save child. Calculate the average retarding force on the vehicle, if mass of the vehicle and driver is 300 kg.
6. The pulleys and strings shown in figure are smooth and of negligible mass. For the system to remain in equilibrium, what should the angle  $\theta$  be?



7. Two masses  $m_1$  and  $m_2$  are connected by a massless string as shown in figure. Find the value of tension in the string if a force of 200 N is applied on (i)  $m_1$  and (ii)  $m_2$ .



8. A suitcase is gently dropped on a conveyor belt moving at 3 m/s. If the coefficient of friction between the belt and the suitcase is 0.5, how far will the suitcase move on the belt before coming to rest?
9. A truck moving at 72 km/h carries a steel girder which rests on its wooden floor. What is the minimum time in which the truck can come to stop without the girder moving forward? Coefficient of static friction between steel and wood is 0.5.
10. An aeroplane requires for take-off a speed of 80 km/h, the run on the ground being 100m. The mass of the aeroplane is  $10^4$  kg and the coefficient of friction between the plane and the ground is 0.2. Assume that the plane accelerates uniformly during the take-off. What is the maximum force required by the engine of the plane for take-off?