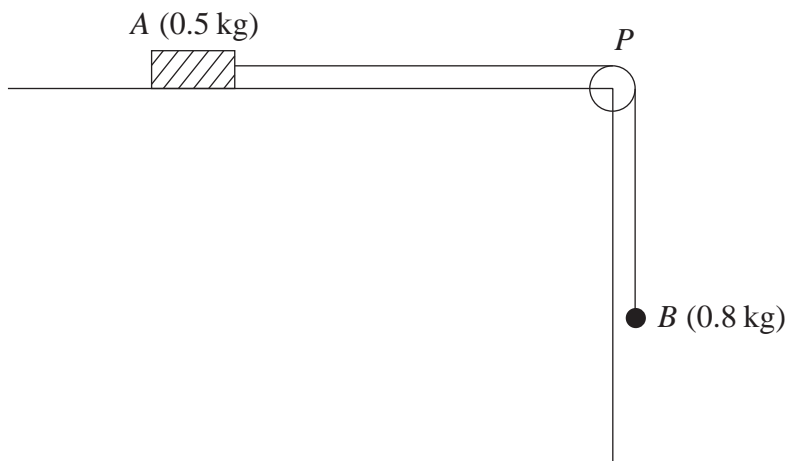


5.

Figure 4



A block of wood A of mass 0.5 kg rests on a rough horizontal table and is attached to one end of a light inextensible string. The string passes over a small smooth pulley P fixed at the edge of the table. The other end of the string is attached to a ball B of mass 0.8 kg which hangs freely below the pulley, as shown in Figure 4. The coefficient of friction between A and the table is μ . The system is released from rest with the string taut. After release, B descends a distance of 0.4 m in 0.5 s . Modelling A and B as particles, calculate

- (a) the acceleration of B , (3)
- (b) the tension in the string, (4)
- (c) the value of μ . (5)
- (d) State how in your calculations you have used the information that the string is inextensible. (1)
