

8.

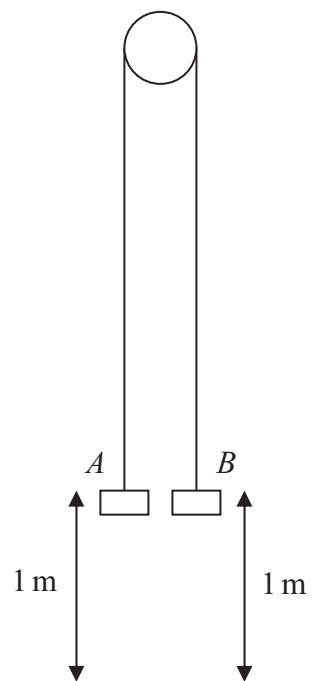


Figure 3

Two particles A and B have mass 0.4 kg and 0.3 kg respectively. The particles are attached to the ends of a light inextensible string. The string passes over a small smooth pulley which is fixed above a horizontal floor. Both particles are held, with the string taut, at a height of 1 m above the floor, as shown in Figure 3. The particles are released from rest and in the subsequent motion B does not reach the pulley.

(a) Find the tension in the string immediately after the particles are released. (6)

(b) Find the acceleration of A immediately after the particles are released. (2)

When the particles have been moving for 0.5 s , the string breaks.

(c) Find the further time that elapses until B hits the floor. (9)



