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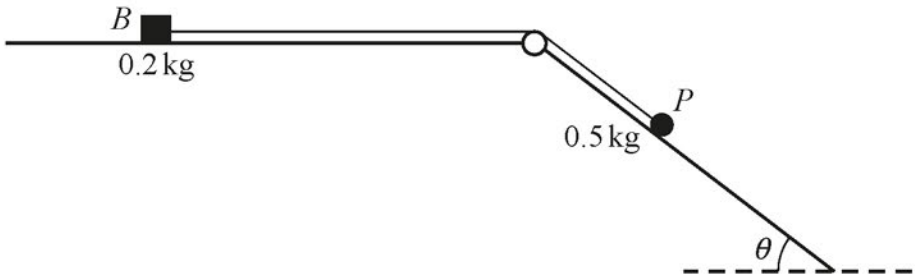

The diagram shows a small block B, of mass 0.2 kg, and a particle P, of mass 0.5 kg, which are attached to the ends of a light inextensible string. The string is taut and passes over a small smooth pulley fixed at the intersection of a horizontal surface and an inclined plane.

The block can move on the horizontal surface, which is rough. The particle can move on the inclined plane, which is smooth and which makes an angle of θ with the horizontal where $\tan\theta = \frac{3}{4}$.

The system is released from rest. In the first 0.4 seconds of the motion P moves 0.3 m down the plane and B does not reach the pulley.

(a) Find the tension in the string during the first 0.4 seconds of the motion. **[4]**

(b) Calculate the coefficient of friction between B and the horizontal surface. **[5]**