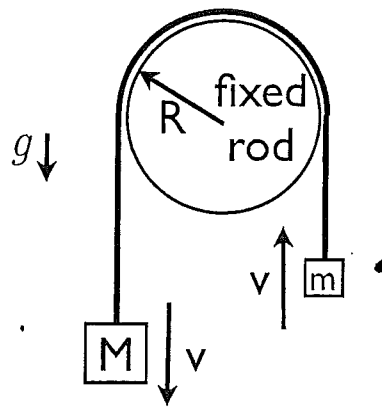## 2.   Rope friction

A heavy mass M and a light mass m are joined by a rope which is passed across a fixed horizontal cylindrical rod of radius R, so the masses hang downwards under the action of gravity g. The heavy mass M has been carefully chosen so it falls with a constant speed v (and the light mass rises with the same speed). The mass of the rope is negligible.

(a) What information about the coefficients of friction between the rope and the cylinder can be deduced from this observation?