



## STEP III, 2000 Q11

- 11 A thin beam is fixed at a height  $2a$  above a horizontal plane. A uniform straight rod  $ACB$  of length  $9a$  and mass  $m$  is supported by the beam at  $C$ . Initially, the rod is held so that it is horizontal and perpendicular to the beam. The distance  $AC$  is  $3a$ , and the coefficient of friction between the beam and the rod is  $\mu$ .

The rod is now released. Find the minimum value of  $\mu$  for which  $B$  strikes the horizontal plane before slipping takes place at  $C$ .



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