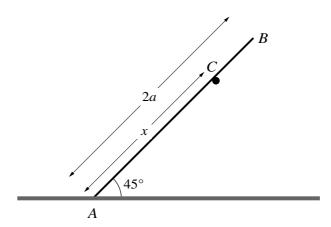
4



A uniform rod AB of length 2a and weight W rests against a smooth horizontal peg at a point C on the rod, where AC = x. The lower end A of the rod rests on rough horizontal ground. The rod is in equilibrium inclined at an angle of  $45^{\circ}$  to the horizontal (see diagram). The coefficient of friction between the rod and the ground is  $\mu$ . The rod is about to slip at A.

(i)	Find an expression for $x$ in terms of $a$ and $\mu$ .	[5]
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(ii)	Hence show that $\mu \geqslant \frac{1}{3}$ .	[2]
(iii)	Given that $x = \frac{3}{2}a$ , find the value of $\mu$ and the magnitude of the resulta	nt force on the rod at $A$ .
()	2., 2.,	[4]