



ABC is the cross-section through the centre of mass of a uniform prism which rests with AB on a rough horizontal surface. $AB = 0.4$ m and C is 0.9 m above the surface (see diagram). The prism is on the point of toppling about its edge through B .

- (i) Show that angle $BAC = 48.4^\circ$, correct to 3 significant figures. [3]

A force of magnitude 18 N acting in the plane of the cross-section and perpendicular to AC is now applied to the prism at C . The prism is on the point of rotating about its edge through A .

- (ii) Calculate the weight of the prism. [3]
- (iii) Given also that the prism is on the point of slipping, calculate the coefficient of friction between the prism and the surface. [4]