

A uniform rectangular block has a square base  $ABCD$  with  $AB = BC = 0.4$  m. The height of the block is  $h$  m. The block is placed with its base on a rough plane inclined at  $30^\circ$  to the horizontal. The block does not slide. It is given that the block is on the point of toppling when the diagonal  $AC$  lies along a line of greatest slope. Calculate  $h$ . [3]