

Fig. 1

Fig. 1 shows the cross-section $ABCDE$ through the centre of mass G of a uniform prism. The cross-section consists of a rectangle $ABCF$ from which a triangle DEF has been removed; $AB = 0.6$ m, $BC = 0.7$ m and $DF = EF = 0.3$ m.

- (i) Show that the distance of G from BC is 0.276 m, and find the distance of G from AB . [5]

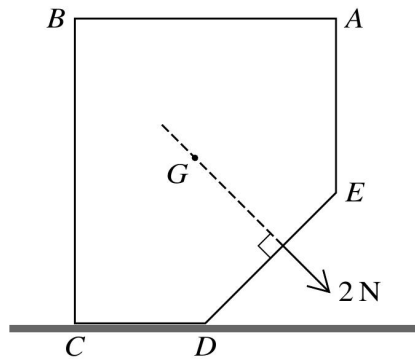


Fig. 2

The prism is placed with CD on a rough horizontal surface. A force of magnitude 2 N acting in the plane of the cross-section is applied to the prism. The line of action of the force passes through G and is perpendicular to DE (see Fig. 2). The prism is on the point of toppling about the edge through D .

- (ii) Calculate the weight of the prism. [3]

[This page is intentionally left blank for answering the question.]