

AS Level Physics A
H156/01 Breadth in Physics

Question Set 5

1. Fig. 22 shows a uniform platform secured to a wall and resting on a vertical concrete pillar.

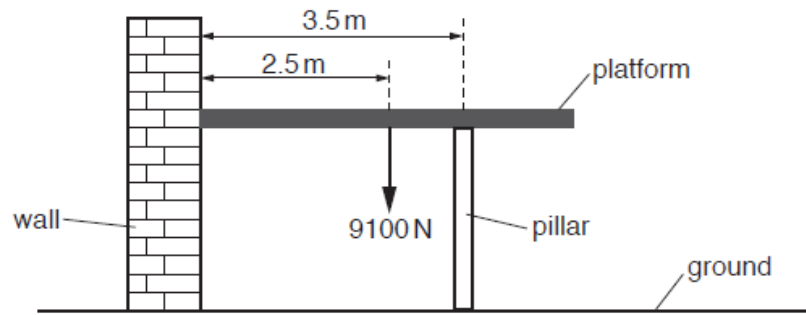


Fig. 22

The platform is in a horizontal position.

The weight of the platform is 9100 N and it has length 5.0 m. The centre of the pillar is 3.5 m from the wall.

- (a) Use the principle of moments and the information provided in Fig. 22 to calculate the vertical force F exerted by the pillar on the platform.

$$F = \quad \quad \quad \text{N}$$

[2]

- (b) The stress in the concrete pillar is 1.1×10^5 Pa. The original length of the pillar was 2.3 m. The Young modulus of concrete is 1.4×10^{10} Pa. Calculate the compression x of the pillar.

$$X = \quad \quad \quad \text{m}$$

[3]

Total Marks for Question Set 5: 5

OCR

Oxford Cambridge and RSA

Copyright Information

OCR is committed to seeking permission to reproduce all third-party content that it uses in its assessment materials. OCR has attempted to identify and contact all copyright holders whose work is used in this paper. To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced in the OCR Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download from our public website (www.ocr.org.uk) after the live examination series.

If OCR has unwittingly failed to correctly acknowledge or clear any third-party content in this assessment material, OCR will be happy to correct its mistake at the earliest possible opportunity.

For queries or further information please contact The OCR Copyright Team, The Triangle Building, Shaftesbury Road, Cambridge CB2 8EA.

OCR is part of the Cambridge Assessment Group; Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge