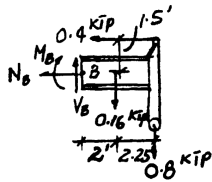
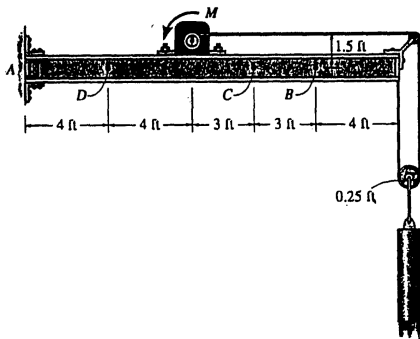


1-15 The 800-lb load is being hoisted at a constant speed using the motor M , which has a weight of 90 lb. Determine the resultant internal loadings acting on the cross section through point B in the beam. The beam has a weight of 40 lb/ft and is fixed to the wall at A .



$$\rightarrow \Sigma F_x = 0; \quad -N_B - 0.4 = 0$$

$$N_B = -0.4 \text{ kip} \quad \text{Ans}$$

$$+\uparrow \Sigma F_y = 0; \quad V_B - 0.8 - 0.16 = 0$$

$$V_B = 0.960 \text{ kip} \quad \text{Ans}$$

$$\curvearrowright \Sigma M_B = 0; \quad -M_B - 0.16(2) - 0.8(4.25) + 0.4(1.5) = 0$$

$$M_B = -3.12 \text{ kip} \cdot \text{ft} \quad \text{Ans}$$

From *Mechanics of Materials*, Sixth Edition by R. C. Hibbeler, ISBN 0-13-191345-X.

© 2005 R. C. Hibbeler. Published by Pearson Prentice Hall,

Pearson Education, Inc., Upper Saddle River, NJ. All rights reserved.

This material is protected under all copyright laws as they currently exist. No portion of this material may be reproduced, in any form or by any means, without permission in writing from the publisher.