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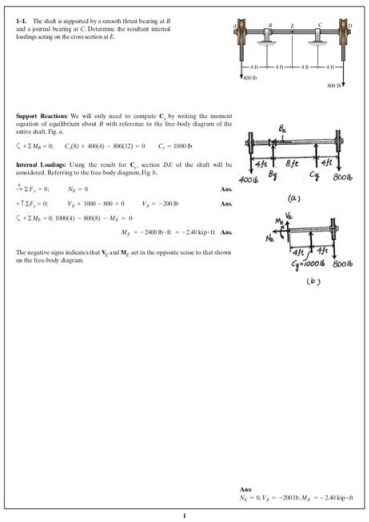
so many fake sites. this is the first one which worked! Many thanks



1-1. The shaft is supported by a smooth thrust bearing at B and a journal bearing at C. Determine the resultant internal loadings acting on the cross section at E.

Support Reactions We will only need to compute C_y by writing the moment equation of equilibrium about B with reference to the free-body diagram of the entire shaft, Fig. *a*.

$\zeta + \Sigma M_B = 0; \quad C_y(8) + 400(4) - 800(12) = 0 \quad C_y = 1000\ \text{lb}$

Internal Loadings Using the result for C_y, section DE of the shaft will be considered. Referring to the free-body diagram, Fig. *b*,

$\stackrel{+}{\rightarrow} \Sigma F_x = 0; \quad N_E = 0$ Ans.

$+\uparrow \Sigma F_y = 0; \quad V_E + 1000 - 800 = 0 \quad V_E = -200\ \text{lb}$ Ans.

$\zeta + \Sigma M_E = 0; \ 1000(4) - 800(8) - M_E = 0$

$M_E = -2400\ \text{lb}\cdot\text{ft} = -2.40\ \text{kip}\cdot\text{ft}$ Ans.

The negative signs indicate that $\mathbf{V}_E$ and $\mathbf{M}_E$ act in the opposite sense to that shown on the free-body diagram.

Ans.
$N_E = 0, V_E = -200\ \text{lb}, M_E = -2.40\ \text{kip}\cdot\text{ft}$

1

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