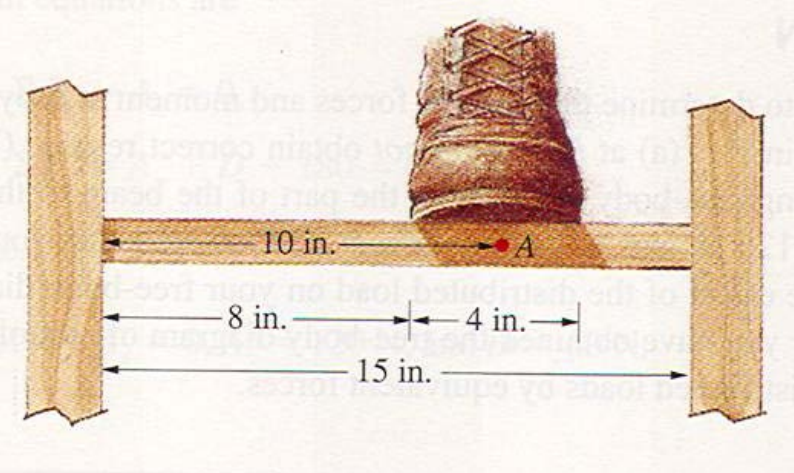
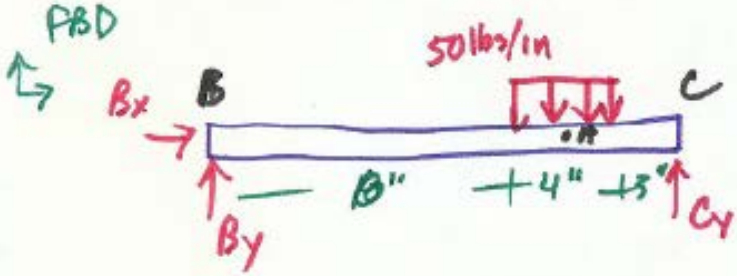
Internal Forces 3

A 200-lb man is climbing a ladder. Determine the internal forces and moment at *A*. What assumptions do you need to make in order to model this problem?



ASSUME - SIMPLY SUPPORTED - FIXED IS INDETERMINATE
BOOT APPLIES UNIFORM LOAD OVER 4"
A IS CENTERED UNDER BOOT

SO MODEL LOOKS LIKE



$\Sigma M_B = 0 = 10(200) - 15 C_y$ $\quad C_y = 133.3 \text{ lbs} \uparrow$

Cut @ A

$N_A = 0$

$\uparrow \Sigma F_y = 0 = -V_A - 50(2) + 133.3$

$V_A = 33.3 \text{ lbs} \downarrow$ on AC

$\circlearrowleft \Sigma M_A = 0 = -M_A + 50(2)(1) - 5(133.3)$

$M_A = -566.3 = 566.3 \text{ in-lbs} \circlearrowleft$ on AC