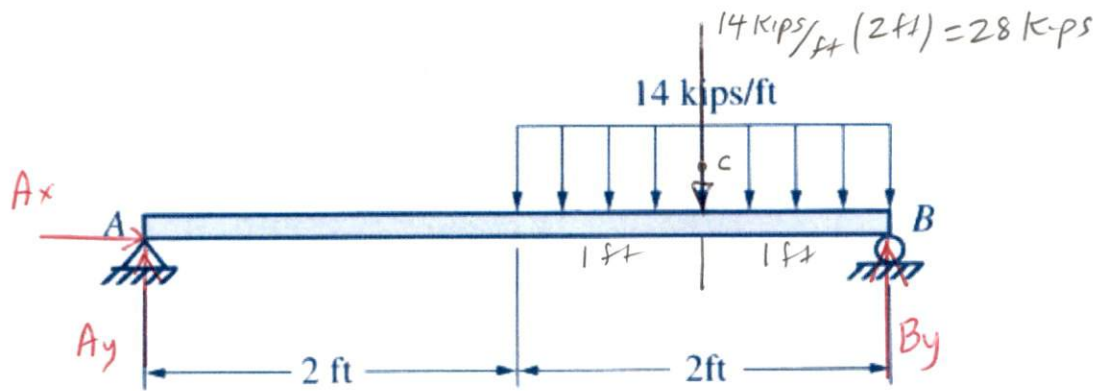


13-22b

13-22 to 13-37 Refer to Figs. P13-22 to P13-37. Construct the shear force and the bending moment diagrams for the beam in each figure due to the loading shown by using the relationships among the load, shear, and moment diagrams.



Solution.

FBD

ccw + M ↶  
cw - M ↷

Equilibrium Equations

$$[\sum F_x = 0] \quad A_x = 0$$

$$[\sum M_A = 0] \quad -28 \text{ kips}(3 \text{ ft}) + B_y(4 \text{ ft}) = 0$$

$$B_y = \frac{84 \text{ kip}\cdot\text{ft}}{4} = 21 \text{ kips} \uparrow$$

$$[\sum F_y = 0] \quad A_y - 28 \text{ kips} + B_y = 0$$

$$A_y = 28 \text{ kips} - 21 \text{ kips} = 7 \text{ kips} \uparrow$$

