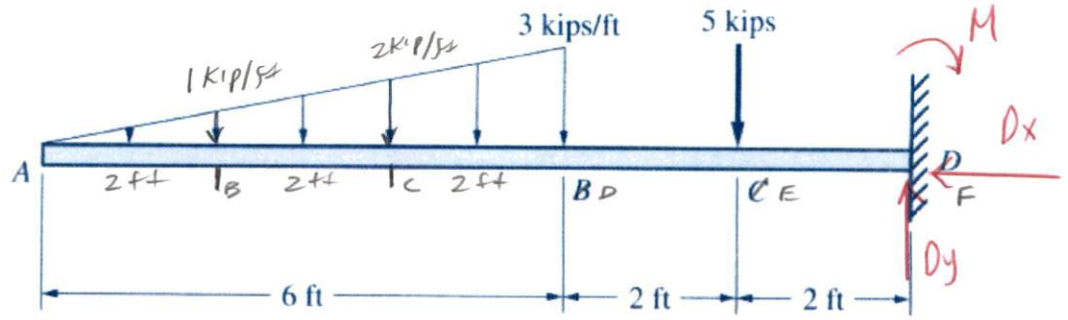
13-18

13-16 to 13-21 Refer to Figs. P13-16 to P13-21. Draw the shear force and bending moment diagrams for each beam. Locate the section with zero shear force (if any) and determine the moment at the section.



Solution.

From P13-15

Fixed support Reactions

$D_x = 0$

$D_y = 14$ kips ↑

$M = -64$ kip·ft ↺

Shear Force (V)

$V_A = 0$

$V_B = -1$ kip

$V_C = -4$ kips

$V_D = -9$ kips

$V_{E-} = -9$ kips

$V_{E+} = -14$ kips

$V_{F-} = -14$ kips

$V_{F+} = 0$

Bending Moment (M)

$M_A = 0$

$M_B = -0.667$ kip·ft

$M_C = -5.33$ kip·ft

$M_D = -18$ kip·ft

$M_E = -36$ kip·ft

$M_F = -64$ kip·ft (from Right)

13-18

Shear and Moment Diagrams