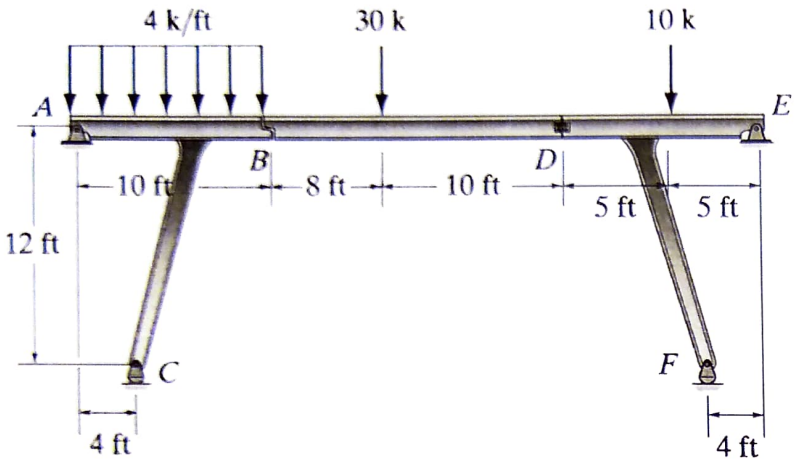
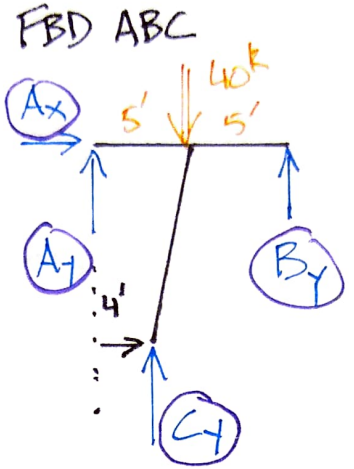
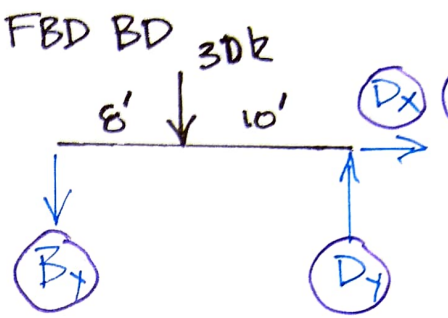
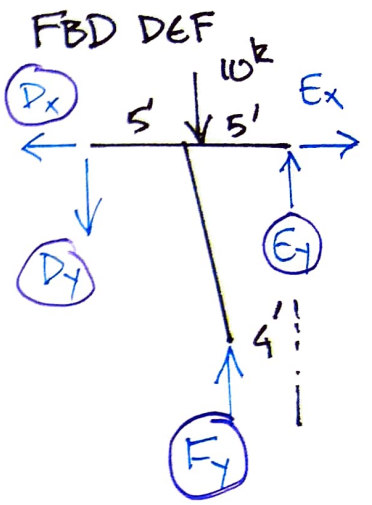
Problem 2-43. The compound beam is pinned at *A*, *D*, and *E*, rocker supported at *C* and *F*, and roller supported at *B*. Determine the reactions.









FBD BD

① $\circlearrowleft +\sum M_D = 0 = 30^k(10') + B_y(18')$

$B_y = -16.67^k$

② $+\uparrow \sum F_y = 0 = D_y - B_y - 30^k$

$D_y = 13.33^k$

③ $\overset{+}{\rightarrow} \sum F_x = 0$

$= D_x = 0$

FBD ABC

④ $\circlearrowleft +\sum M_A = 0 = C_y(4') + B_y(10') - 40^k(5')$

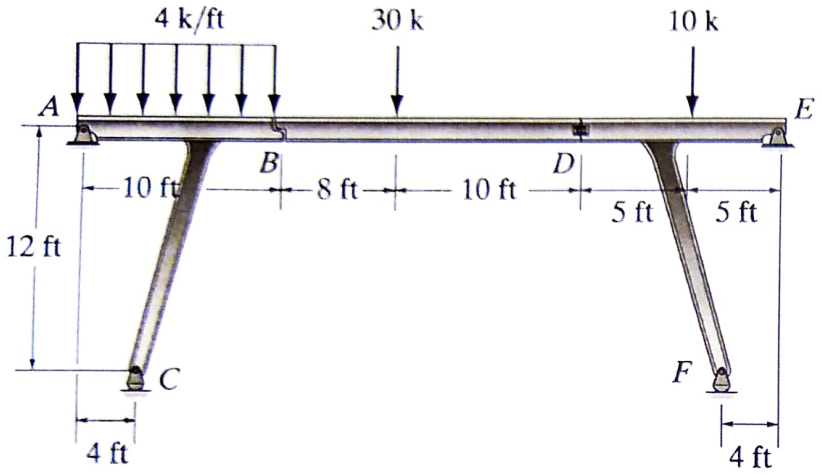
$C_y = 91.67^k$

⑤ $+\uparrow \sum F_y = 0 = C_y + B_y - 40^k + A_y$

$A_y = -35^k$

⑥ $\overset{+}{\rightarrow} \sum F_x = 0 = A_x$

Problem 2-43. The compound beam is pinned at *A*, *D*, and *E*, rocker supported at *C* and *F*, and roller supported at *B*. Determine the reactions.



FBD DEF

$$\circlearrowleft + \sum M_E = 0 = D_y(10') - F_y(4') + 10^k(5')$$

$$F_y = 45.82^k$$

$$+\uparrow \sum F_y = 0 = F_y + E_y - D_y - 10^k$$

$$E_y = -22.5^k$$

$$\xrightarrow{+} \sum F_x = 0 = E_x - D_x$$

$$E_x = 0$$