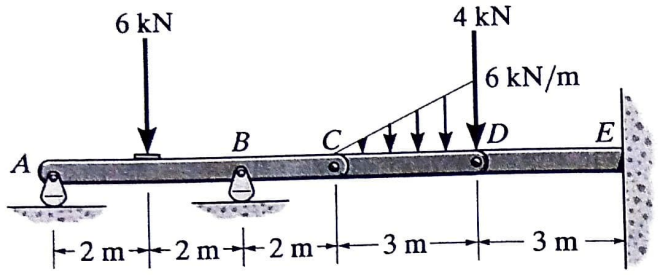
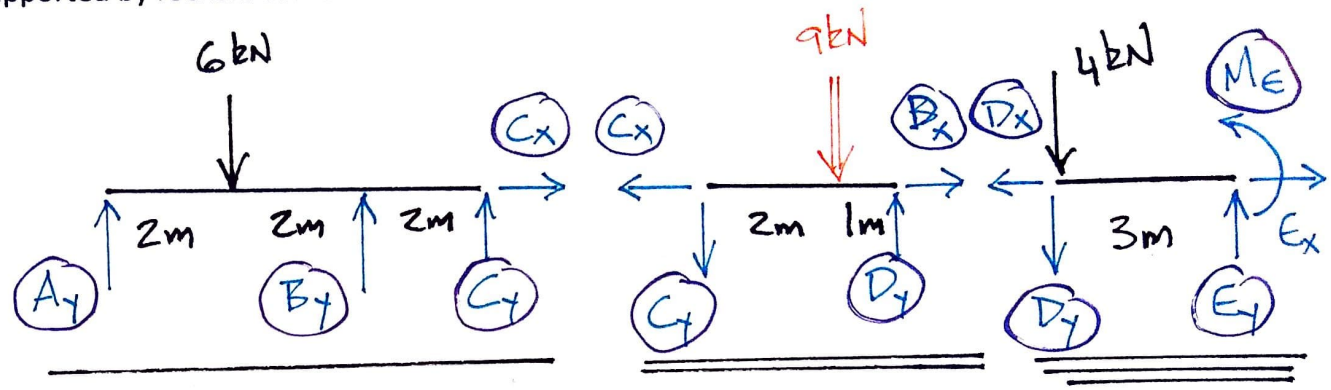
Problem 2-27. The compound beam is fixed at E and supported by rockers at A and B. Determine the reactions.





FBD ΔABC

① $\overrightarrow{+}\sum F_x = 0 = C_x$

FBD CD

② $\overrightarrow{+}\sum F_x = 0 = D_x - C_x$

$D_x = 0$

③ $\circlearrowleft +\sum M_C = 0 = D_y(3m) - 9kN(2m)$

$D_y = 6kN$

④ $+\uparrow\sum F_y = 0 = -C_y + D_y - 9kN$

$C_y = -3kN$

FBD ABC

⑤ $\circlearrowleft +\sum M_A = 0 = B_y(4m) + C_y(6m) - 6kN(2m)$

$B_y = 7.5kN$

⑥ $+\uparrow\sum F_y = 0 = A_y + B_y + C_y - 6kN$

$A_y = 1.5kN$

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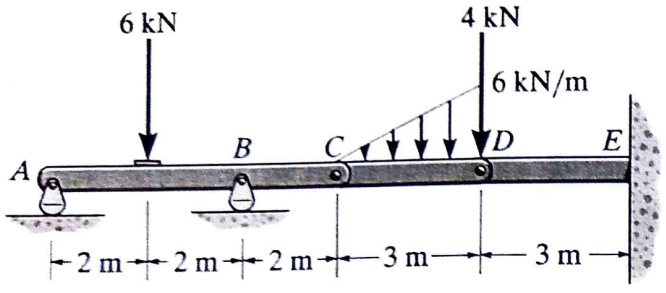

FBD DE

$$\circlearrowleft + \sum M_E = 0 = M_E + 4\text{kN}(3\text{m}) + D_y(3\text{m})$$

$$\underline{M_E = -30\,\text{kN m}}$$

$$+\uparrow \sum F_y = 0 = -D_y + E_y - 4\text{kN}$$

$$\underline{E_y = 10\,\text{kN}}$$

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

$$\underline{E_x = 0}$$