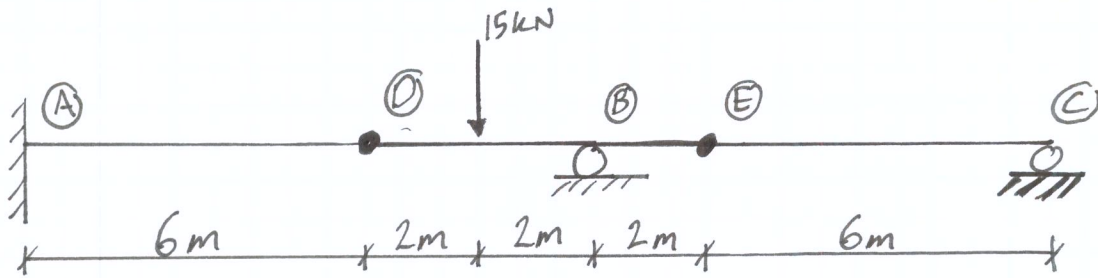
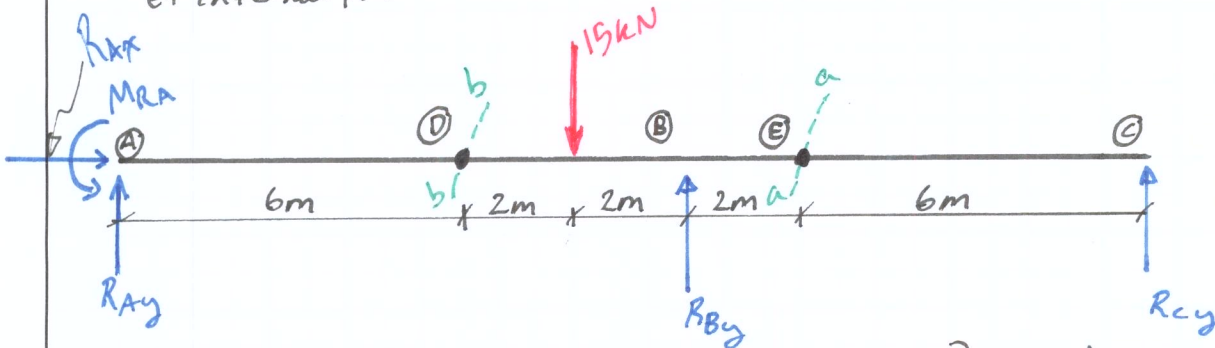


FOR THE FRAME, FIND REACTIONS

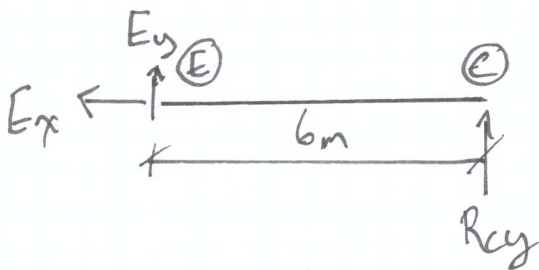


- A: Fixed
- B: Roller
- C: Roller
- D: internal pin
- E: internal pin.



Reactions = 5 (5 unknowns)
 # Equations = 3 ($\sum F_x = 0, \sum F_y = 0, \sum M = 0$) } need to make section cuts to solve.

Cut at a-a and draw FBD of EC



$$\sum F_x = 0 \rightarrow E_x = 0$$

$$\sum F_y = 0 \rightarrow E_y + R_{cy} = 0$$

$$\sum M_E = 0 \quad \leftarrow R_{cy}(6) = 0$$

$$R_{cy} = 0$$

$$\rightarrow E_y + 0 = 0$$

$$E_y = 0$$

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Date MARCH 13, 2015

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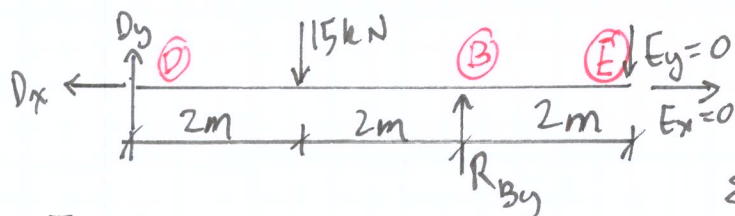
Problem No. 2

By ALAN LLOYD

of

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cut at b-b and a-a Draw FBD of DE



$\Sigma F_y = 0, \Sigma F_x = 0, \Sigma M = 0$

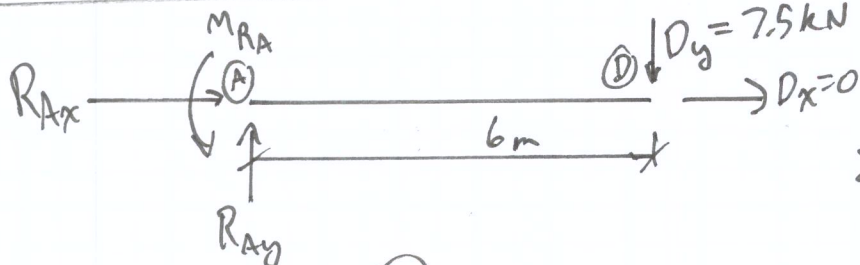
$\Sigma F_x = 0 \rightarrow D_x = 0$

$\Sigma F_y = 0$
 $D_y - 15 + R_{B,y} = 0$

$R_{B,y} = 15 - 7.5$
 $R_{B,y} = +7.5 \text{ kN } \uparrow$

$\Sigma M_B = 0$
 $15(2) - D_y(4) = 0$
 $D_y = +7.5 \text{ kN}$

cut at b-b Draw FBD For AD



$\Sigma F_x = 0$
 $R_{A,x} = 0$

$\Sigma F_y = 0$
 $R_{A,y} - D_y = 0$
 $R_{A,y} = +7.5 \text{ kN}$

$\Sigma M_A = 0 \rightarrow M_{RA} - D_y(6) = 0$
 $M_{RA} = (7.5)(6)$

$M_{RA} = +45 \text{ kN}\cdot\text{m}$

Summary Diagram

