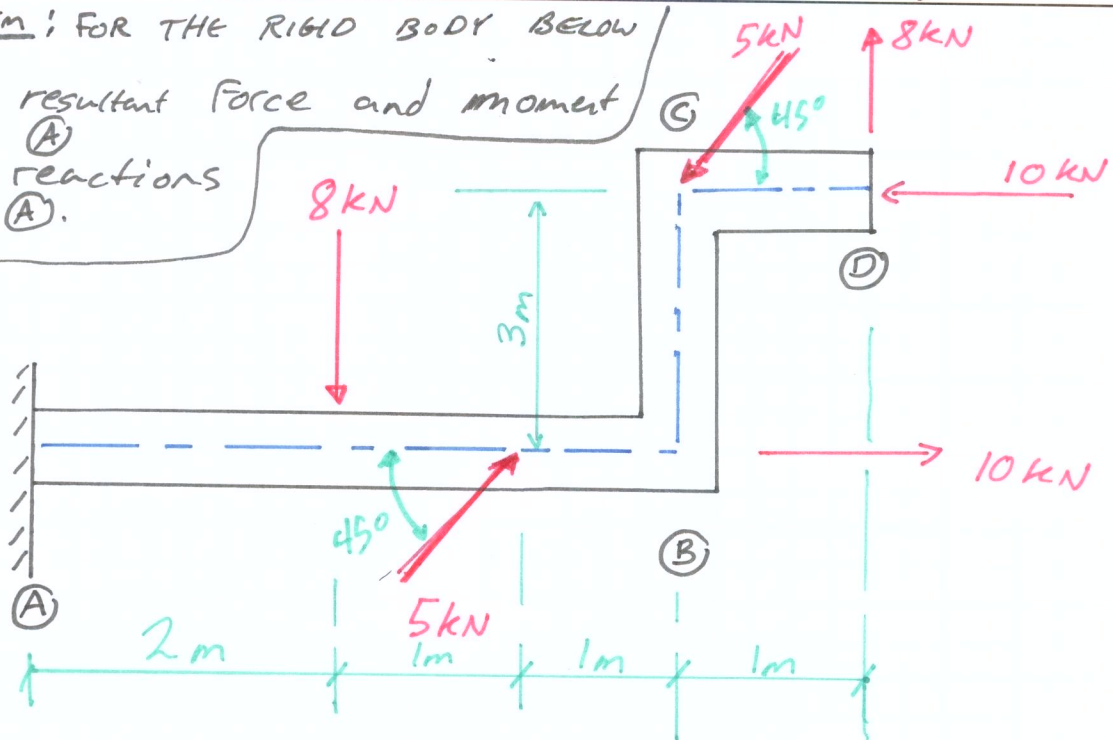
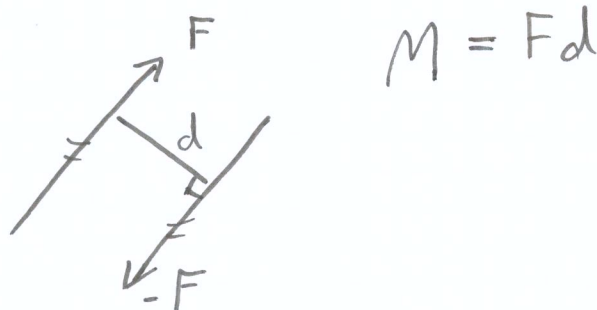


PROBLEM; FOR THE RIGID BODY BELOW
FIND:

- The resultant force and moment at **(A)**
- The reactions at **(A)**.

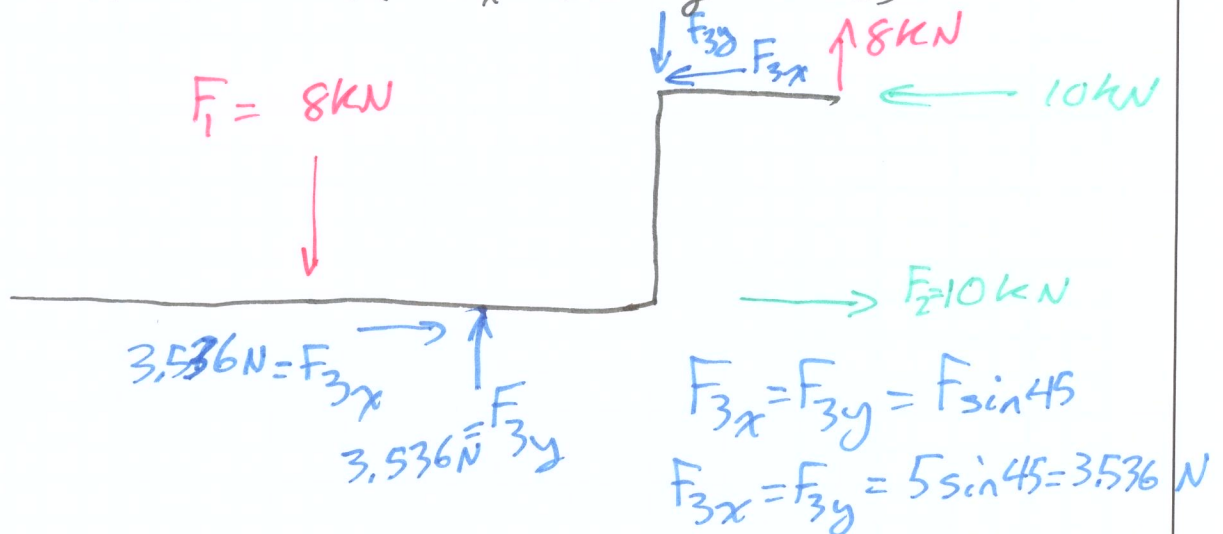


• We have 3 moment couples



• We can work in F_x and F_y forces

FBD



Course No. CE 1023

Assignment No.

Date

Page

Problem No.

By ALAN LLOYD

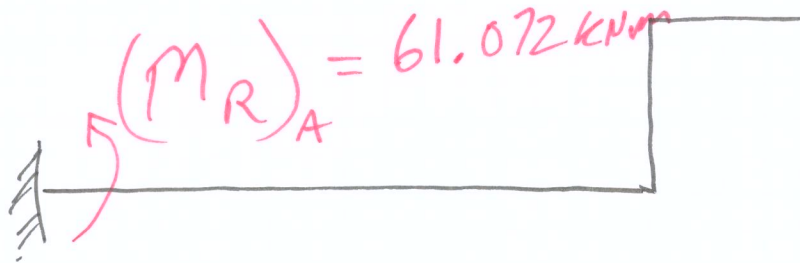
of

o Force Resultants.

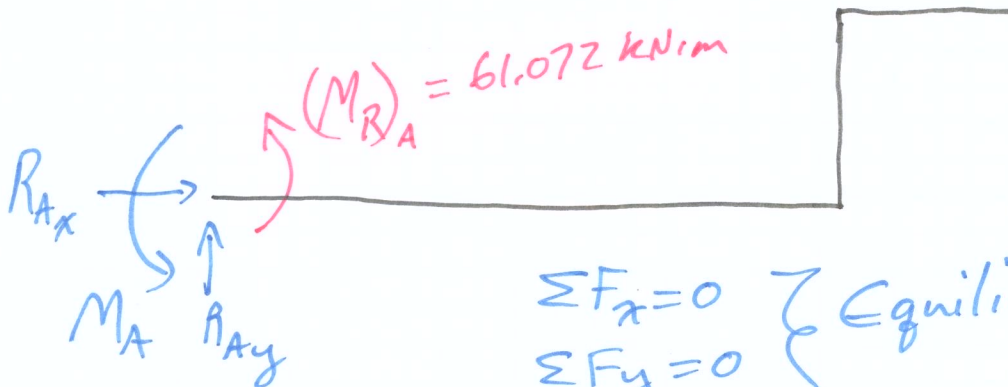
$$\Sigma F_x = F_{Rx} = (+10 - 10) + (+3.536 - 3.536) = 0$$

$$\Sigma F_y = F_{Ry} = (+8 - 8) + (+3.536 - 3.536) = 0$$

o Moment couples do not produce resultant forces



b) Find Reactions



$$\left. \begin{array}{l} \Sigma F_x = 0 \\ \Sigma F_y = 0 \\ \Sigma M = 0 \end{array} \right\} \text{Equilibrium}$$

$$\Sigma F_x = 0 \rightarrow R_{Ax} = 0$$

$$\Sigma F_y = 0 \rightarrow R_{Ay} = 0$$

$$\Sigma M_A = 0 \quad M_A + (M_R)_A = 0$$

$$M_A = -61.072 \text{ kNm}$$

Course No. CE 10 23

Assignment No.

Date

Page

Problem No.

By

ALAN LLOYD

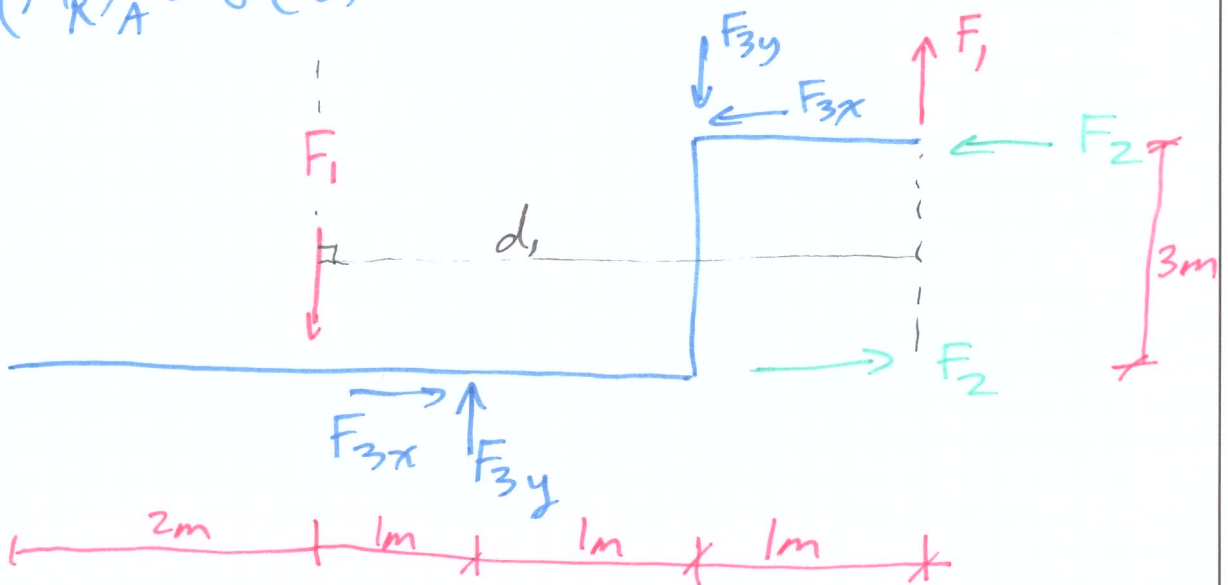
of

Recall: $(M_R)_A = \Sigma Fd$

$$(M_R)_A = F_1 d_1 + F_2 d_2 + F_{3x} d_{3x} + F_{3y} d_{3y}$$

$$(M_R)_A = F_1 d_1 + F_2 d_2 + F_{3x} d_{3x} - F_{3y} d_{3y}$$

$$(M_R)_A = 8(3) + 10(3) + (3.536)(3) - (3.536)(3)$$



$$(M_{RA}) = 61.072 \text{ kN}\cdot\text{m}$$

