

M2

Forces

$$2 \begin{pmatrix} \frac{2}{\sqrt{3}} \\ -\frac{1}{\sqrt{3}} \\ 0 \end{pmatrix} \text{ N @ } \begin{pmatrix} -3 \\ 2 \\ 0 \end{pmatrix}$$

$$3 \begin{pmatrix} -1 \\ 0 \\ 0 \end{pmatrix} \text{ N @ } \begin{pmatrix} -1 \\ -2 \\ 0 \end{pmatrix}$$

$$3 \begin{pmatrix} \frac{1}{\sqrt{2}} \\ -\frac{1}{\sqrt{2}} \\ 0 \end{pmatrix} \text{ N @ } \begin{pmatrix} 3 \\ 3 \\ 0 \end{pmatrix}$$

Moment

$$5 \begin{pmatrix} 0 \\ 0 \\ 1 \end{pmatrix} \text{ Nm @ } \begin{pmatrix} 2 \\ -2 \\ 0 \end{pmatrix}$$

$$a) \sum \underline{F} : 2 \begin{pmatrix} \frac{2}{\sqrt{3}} \\ -\frac{1}{\sqrt{3}} \\ 0 \end{pmatrix} + 3 \begin{pmatrix} -1 \\ 0 \\ 0 \end{pmatrix} + 3 \begin{pmatrix} \frac{1}{\sqrt{2}} \\ -\frac{1}{\sqrt{2}} \\ 0 \end{pmatrix} = \begin{pmatrix} -2 \\ -2 \\ 0 \end{pmatrix} \text{ N}$$

$\swarrow -3.3$
 $\nearrow -3.01$

$$b) \sum \underline{r} \times \underline{F} + \sum \underline{M} : 2 \begin{pmatrix} -3 \\ 2 \\ 0 \end{pmatrix} \times \begin{pmatrix} \frac{2}{\sqrt{3}} \\ -\frac{1}{\sqrt{3}} \\ 0 \end{pmatrix} = 2 \begin{pmatrix} 0 \\ 0 \\ \frac{1}{\sqrt{3}} \end{pmatrix}$$

$$+ 3 \begin{pmatrix} 3 \\ 3 \\ 0 \end{pmatrix} \times \begin{pmatrix} \frac{1}{\sqrt{2}} \\ -\frac{1}{\sqrt{2}} \\ 0 \end{pmatrix} = 3 \begin{pmatrix} 0 \\ 0 \\ 0 \end{pmatrix}$$

$$+ 3 \begin{pmatrix} -1 \\ -2 \\ 0 \end{pmatrix} \times \begin{pmatrix} -1 \\ 0 \\ 0 \end{pmatrix} = 3 \begin{pmatrix} 0 \\ 0 \\ -2 \end{pmatrix} + \begin{pmatrix} 0 \\ 0 \\ 5 \end{pmatrix} \Rightarrow \sum \underline{M} + \sum \underline{r} \times \underline{F} = \begin{pmatrix} 0 \\ 0 \\ -\frac{2}{\sqrt{3}} \end{pmatrix} \text{ Nm}$$