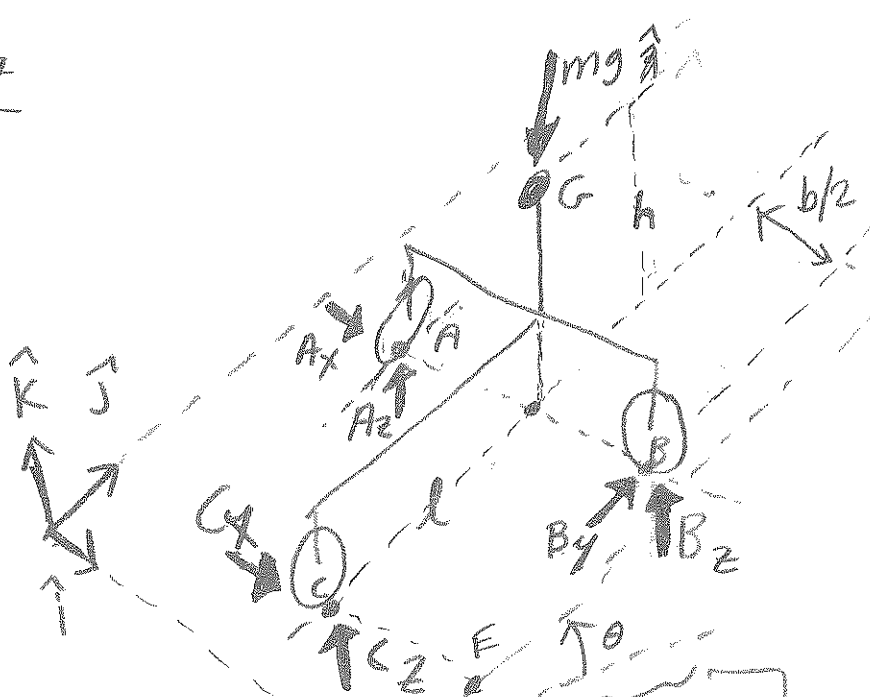


4.5.17



$$\hat{k} \rightarrow \begin{matrix} \nearrow \\ \searrow \end{matrix} \begin{matrix} \hat{i} \\ \hat{j} \end{matrix}$$

$$\hat{a} = -\cos\theta \hat{k} - \sin\theta \hat{j}$$

Note B_z, A_z, C_z
not \parallel to \hat{a} .

FIND Reaction at A?

$\Sigma M_{CB} = 0 \Rightarrow$ [Reactions at C & B drop out.]

$$\left[\vec{r}_{BA} \times A_z \hat{k} + \vec{r}_{BG} \times (mg \hat{a}) \right] \cdot \vec{r}_{CB} = 0$$

$\left[\begin{matrix} -b \hat{i} \\ \frac{b}{2} \hat{i} + l \hat{j} \end{matrix} \right] \cdot \begin{matrix} -(\cos\theta \hat{k} + \sin\theta \hat{j}) \\ \frac{b}{2} \hat{i} + l \hat{j} \end{matrix}$

$$\Rightarrow \left[b A_z \hat{j} + mg \left[-\frac{b}{2} \cos\theta \hat{j} + \frac{b}{2} \sin\theta \hat{k} - h \sin\theta \hat{i} \right] \right] \cdot \left(\frac{b}{2} \hat{i} + l \hat{j} \right) = 0$$

$$l b A_z + mg \left[-h \sin\theta \frac{b}{2} + \frac{b l \cos\theta}{2} \right] = 0$$

$$A_z = mg \left[\frac{\cos\theta}{2} - \frac{h}{2l} \sin\theta \right] \rightarrow \boxed{\vec{A} = A_x \hat{i} + A_z \hat{k}}$$

$\Sigma M_{EK} = 0 \Rightarrow$ (Reacts at C & B drop out again)

$$-A_x l + \left[\vec{r}_{EG} \times mg \hat{a} \right] \cdot \hat{k} = 0$$

$\left[\begin{matrix} -\frac{b}{2} \hat{i} + l \hat{j} + h \hat{k} \\ L(-\cos\theta \hat{k} - \sin\theta \hat{j}) \end{matrix} \right]$

$$-A_x l + mg \frac{b}{2} \sin\theta = 0 \Rightarrow \boxed{A_x = mg \frac{b \sin\theta}{2l}}$$