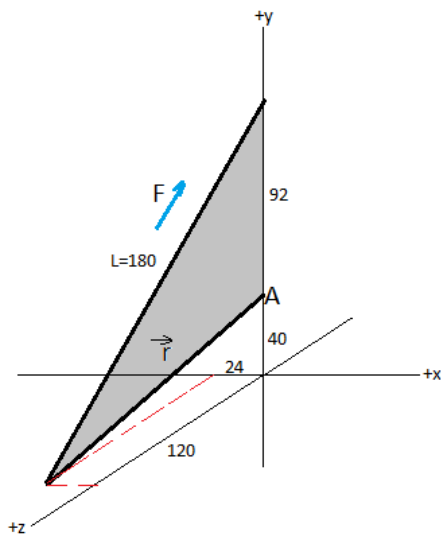


$$L = \sqrt{x^2 + y^2 + z^2} = \sqrt{24^2 + 132^2 + 120^2} = 180$$



Richtingsevctoren:

$$\vec{r}_x = -24\hat{i}$$

$$\vec{r}_y = -40\hat{j}$$

$$\vec{r}_z = +120\hat{k}$$

Richtungscosinus: $F(x, y, z) = F \cdot \cos(\alpha, \beta, \gamma) = 360 \cos(\alpha, \beta, \gamma)$

$$(x)\alpha = \frac{24}{180} \quad F_x = \alpha \cdot 360$$

$$(y)\beta = \frac{132}{180} \quad F_y = \beta \cdot 360$$

$$(z)\gamma = \frac{-120}{180} \quad F_z = \gamma \cdot 360$$

$$M_A = 360 \begin{vmatrix} \hat{i} & \hat{j} & \hat{k} \\ -24 & -40 & 120 \\ \left(\frac{24}{180}\right) & \left(\frac{132}{180}\right) & \left(\frac{-120}{180}\right) \end{vmatrix}$$

$$M_A = 360 \begin{vmatrix} \hat{i} & \hat{j} & \hat{k} \\ -24 & -40 & 120 \\ \left(\frac{24}{180}\right) & \left(\frac{132}{180}\right) & \left(\frac{-120}{180}\right) \end{vmatrix}$$

$$M_A = 360 \left(\hat{i} \left[(-40) \left(-\frac{120}{180} \right) - (120) \left(\frac{132}{180} \right) \right] - \hat{j} \left[(-24) \left(-\frac{120}{180} \right) - (120) \left(\frac{24}{180} \right) \right] + \hat{k} \left[(-24) \left(\frac{132}{180} \right) - (40) \left(\frac{24}{180} \right) \right] \right) = -22080\hat{i} + 0\hat{j} - 8256\hat{k}$$

$$M_A = (-22080\hat{i} + 0\hat{j} - 8256\hat{k}) [Ncm]$$