$$\vec{F}_1 = \{F_{x1}\mathbf{i} + F_{y1}\mathbf{j} + F_{z1}\mathbf{k}\}$$

$$\vec{F}_2 = \{F_{x2}\mathbf{i} + F_{y2}\mathbf{j} + F_{z2}\mathbf{k}\}$$

A member supports two forces $\vec{F}_1$ and $\vec{F}_2$. If the member is **fixed** at O and the mass is negligible, find the reaction components at O.

$$\Sigma F_x = 0 \rightarrow O_x + F_{x1} + F_{x2} = 0 \rightarrow O_x = -F_{x1} - F_{x2}$$

$$\Sigma F_y = 0 \rightarrow O_y + F_{y1} + F_{y2} = 0 \rightarrow O_y = -F_{y1} - F_{y2}$$

$$\Sigma F_z = 0 \rightarrow O_z + F_{z1} + F_{z2} = 0 \rightarrow O_z = -F_{z1} - F_{z2}$$

$$\Sigma (M_x)_O = 0 \rightarrow (M_x)_O + d_1 F_{z1} + d_1 F_{z2} + d_3 F_{y2} = 0 \rightarrow (M_x)_O = -d_1 F_{z1} - d_1 F_{z2} - d_3 F_{y2}$$

$$\Sigma(M_y)_O = 0 \rightarrow (M_y)_O - d_3 F_{x2} - d_2 F_{z2} = 0 \rightarrow (M_y)_O = d_3 F_{x2} + d_2 F_{z2}$$

$$\Sigma(M_z)_O = 0 \rightarrow (M_z)_O - d_1 F_{x1} - d_1 F_{x2} + d_2 F_{y2} = 0 \rightarrow (M_z)_O = d_1 F_{x1} + d_1 F_{x2} - d_2 F_{y2}$$

$$\Sigma(M_y)_O = 0 \rightarrow (M_y)_O - d_3 F_{x2} - d_2 F_{z2} = 0 \rightarrow (M_y)_O = d_3 F_{x2} + d_2 F_{z2}$$

$$\Sigma(M_z)_O = 0 \rightarrow (M_z)_O - d_1 F_{x1} - d_1 F_{x2} + d_2 F_{y2} = 0 \rightarrow (M_z)_O = d_1 F_{x1} + d_1 F_{x2} - d_2 F_{y2}$$