



A fixed beam supports 4 cables pulling in different directions. If the beam experiences a resultant moment of M_R clockwise, no resultant force, and \vec{F} has a magnitude of F , find the magnitudes of \vec{F}_1 and \vec{F}_2 .

Since resultant force is 0, $F_1 = F_2$

Assuming clockwise rotation is positive:

$$M_R = d_2 \cdot F - d_1 \cdot F_1$$

$$\Rightarrow F_1 = \frac{d_2 \cdot F - M_R}{d_1}$$