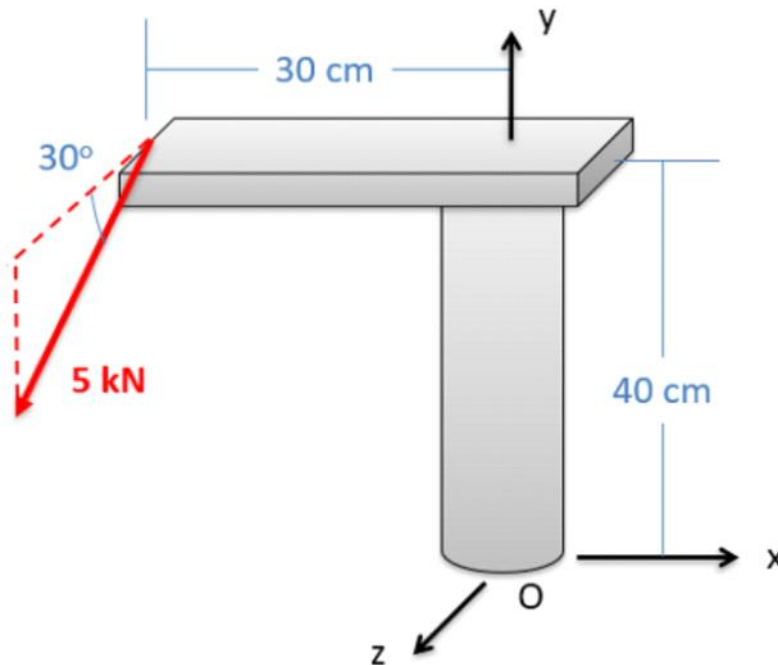


Question 1

A 5 kN force in the y-z plane is exerted at the end of an arm as shown below. What is the moment that this force exerts about the central shaft (the y axis)?



$$\vec{r} = [-.3, .4, 0]$$

$$\vec{F} = [0, -5 \sin(30), 5 \cos(30)]$$

$$\vec{M} = \vec{r} \times \vec{F} = [1.73, 1.30, .75]$$

$$\vec{U} = [0, 1, 0] \leftarrow y \text{ axis}$$

$$M = \vec{U} \cdot \vec{M} = 1.30 \text{ kNm}$$