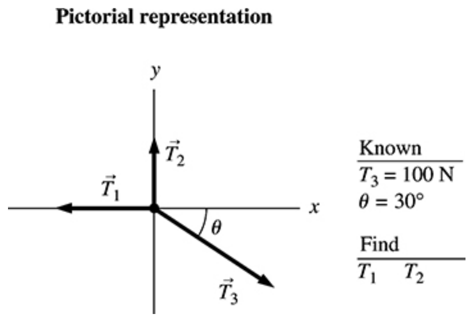
6.1. Model: We can assume that the ring is a single massless particle in static equilibrium.
Visualize:



Solve: Written in component form, Newton's first law is

$$(F_{\text{net}})_x = \Sigma F_x = T_{1x} + T_{2x} + T_{3x} = 0 \text{ N} \quad (F_{\text{net}})_y = \Sigma F_y = T_{1y} + T_{2y} + T_{3y} = 0 \text{ N}$$

Evaluating the components of the force vectors from the free-body diagram:

$$T_{1x} = -T_1 \quad T_{2x} = 0 \text{ N} \quad T_{3x} = T_3 \cos 30°$$

$$T_{1y} = 0 \text{ N} \quad T_{2y} = T_2 \quad T_{3y} = -T_3 \sin 30°$$

Using Newton's first law:

$$-T_1 + T_3 \cos 30° = 0 \text{ N} \quad T_2 - T_3 \sin 30° = 0 \text{ N}$$

Rearranging:

$$T_1 = T_3 \cos 30° = (100 \text{ N})(0.8666) = 86.7 \text{ N} \quad T_2 = T_3 \sin 30° = (100 \text{ N})(0.5) = 50.0 \text{ N}$$

Assess: Since $\vec{T}_3$ acts closer to the *x*-axis than to the *y*-axis, it makes sense that $T_1 > T_2$.