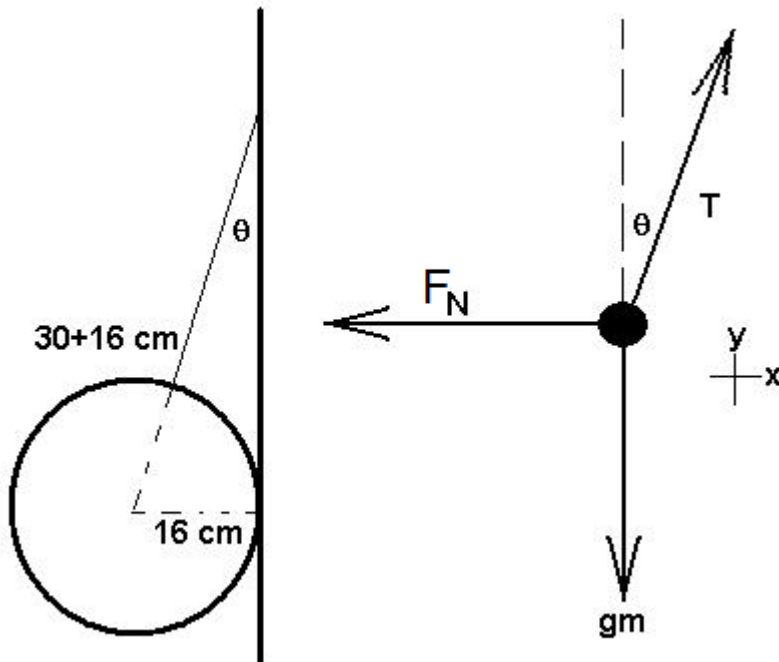


4-4)

First, find the angle the wire makes with the wall.

From the left figure, $\sin\theta = 16/46 \Rightarrow \theta = 20.4^\circ$



Now, use NII in each direction:

$$y: \quad \Sigma_n F_{ny} = ma_y$$

$$T\cos\theta - gm = ma_y = 0 \quad (\text{ball is at rest})$$

$$T\cos\theta = gm$$

$$T = gm/\cos\theta = 9.8 \cdot 45 / \cos(20.4) = 470 \text{ N}$$

$$x: \quad \Sigma_n F_{nx} = ma_x$$

$$T\sin\theta - F_N = ma_x = 0 \quad (\text{ball is at rest})$$

$$F_N = T\sin\theta = 470 \cdot \sin(20.4) = 164 \text{ N}$$