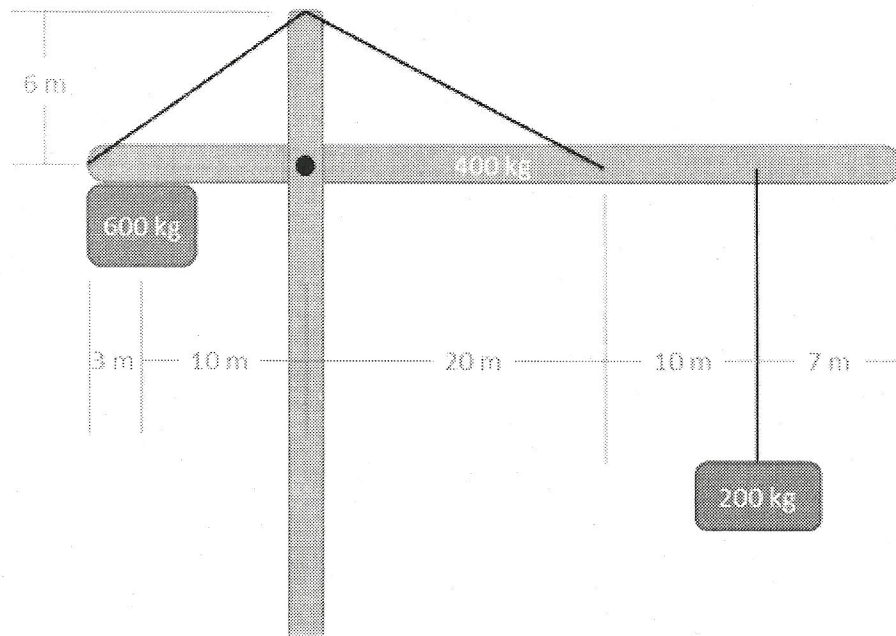


The main arm of a crane has a mass of 400 kg (assume the center of mass is at the midpoint of the arm) and supports a 200 kg load and a 600 kg counterweight. The arm is connected to the vertical support via a pin joint and two flexible cables. Draw a free body diagram of the arm.



$$\theta_1 = \tan^{-1}\left(\frac{6}{13}\right)$$

$$\theta_1 = 24.8^\circ$$

$$\theta_2 = \tan^{-1}\left(\frac{6}{20}\right)$$

$$\theta_2 = 16.7^\circ$$

