

Question 7

The SkyCam shown below is supported by three cables. Assuming it has a mass of 20kg and that it is currently in equilibrium find the tension in each of the three cables supporting the SkyCam.

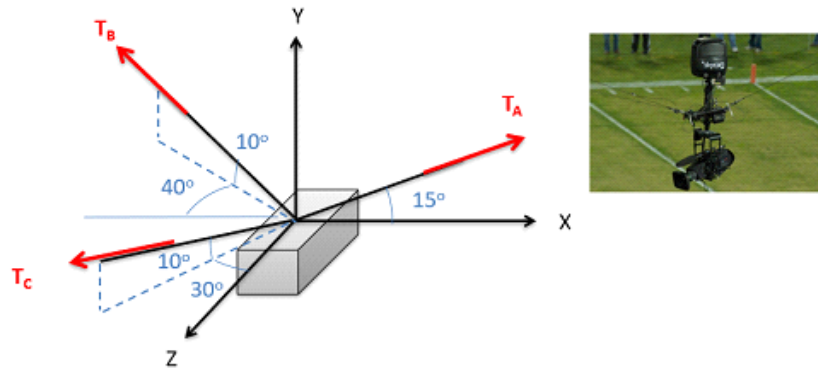
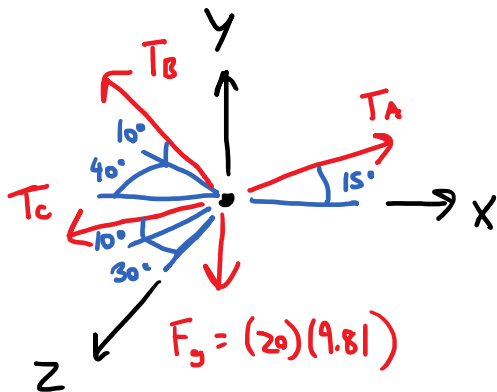


Image by Jrienstra CC-BY-SA 3.0.



$$\sum F_x = T_A \cos(15) - T_B \cos(10) \cos(40) - T_C \cos(10) \sin(30) = 0$$

$$\sum F_y = T_A \sin(15) + T_B \sin(10) + T_C \sin(10) - 196.2 = 0$$

$$\sum F_z = -T_B \cos(10) \sin(40) + T_C \cos(10) \cos(30) = 0$$

Use equation solver

$$\begin{aligned} T_A &= 377.5 \text{ N} \\ T_B &= 325.6 \text{ N} \\ T_C &= 241.7 \text{ N} \end{aligned}$$