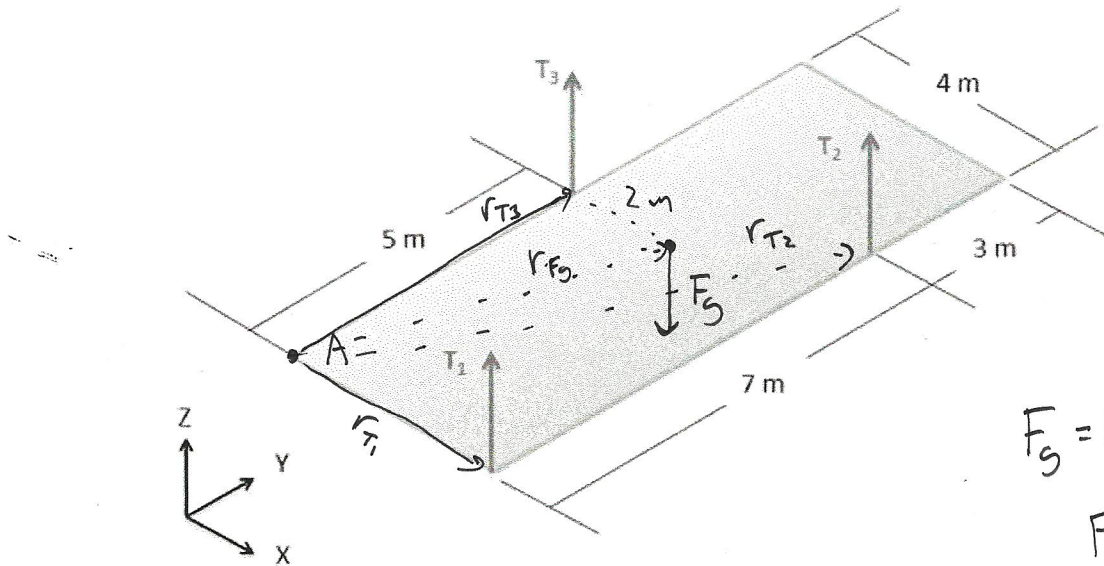


A sixty kilogram acoustic panel is suspended by three cables as shown below. Assuming the panel has a uniformly distributed weight, what is the tension in each of the cables?



$$F_g = (60)(9.81)$$

$$F_g = 588.6 \text{ N}$$

$$\sum F_y = T_1 + T_2 + T_3 - 588.6 = 0$$

$$M = r \times F$$

$$M_{T_1} = [4, 0, 0] \times [0, 0, T_1]$$

$$M_{T_1} = [0, -4T_1, 0]$$

$$M_{T_2} = [4, 7, 0] \times [0, 0, T_2]$$

$$M_{T_2} = [7T_2, -4T_2, 0]$$

$$M_{T_3} = [0, 5, 0] \times [0, 0, T_3]$$

$$M_{T_3} = [5T_3, 0, 0]$$

$$M_{F_6} = [2, 5, 0] \times [0, 0, -588.6]$$

$$M_{F_6} = [-2943, 1177, 0]$$

$$\sum M_x = 7T_2 + 5T_3 - 2943 = 0$$

$$\sum M_y = -4T_1 - 4T_2 + 1177 = 0$$

Use computer tools to solve equations.

$$T_1 = 84.1 \text{ N}$$

$$T_2 = 210.2 \text{ N}$$

$$T_3 = 294.4 \text{ N}$$