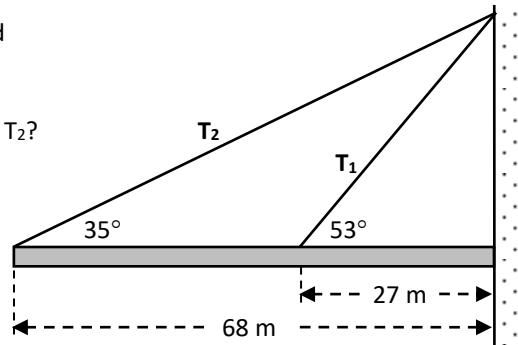


Lesson 3 Practice Assignment
Torque, Oblique Forces and Equilibrium

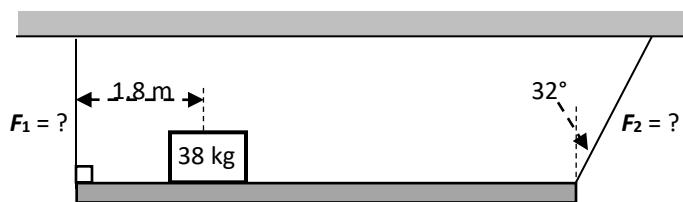
- Examine the diagram to the right. The horizontal uniform 1.2×10^4 kg beam has one cable attached 27 m from the wall, and another attached at the end of the beam. If cable T_1 has a tension of 6.5×10^4 N, what is the tension in the other cable T_2 ?



- In the diagram to the right, the mass of the 12.0 m-long, horizontal, uniform board is 25.0 kg. The system is in static equilibrium.

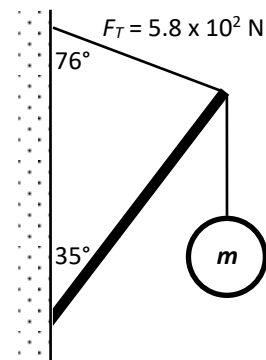


- Calculate the unknown force F needed to balance the system.
 - Determine the magnitude and direction of the force that the fulcrum applies to the board
- Two cables are used to suspend a 15 kg, 7.2 m-long uniform beam, with a crate of mass 38 kg placed on it in the position shown. Determine the tension in each cable that supports the system.



- In the diagram to the right, the beam that supports sign ' m ' has a mass of 24 kg, while the cable attached to the end of the beam has a tension of 5.8×10^2 N.

Determine the mass of sign ' m '.



ANSWERS

1. $T_2 = 6.7 \times 10^4 \text{ N}$

2a) $F = 604 \text{ N}$

2b) $F = 1.21 \times 10^3 \text{ N}$ @ 68.9° up to right from horizontal

3. $F_1 = 3.5 \times 10^2 \text{ N}$, $F_2 = 2.0 \times 10^2 \text{ N}$

4. $m = 84 \text{ kg}$