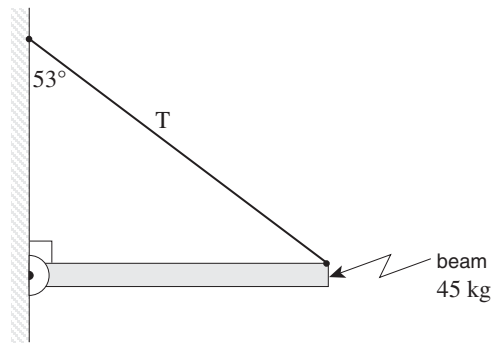


15. A uniform 45 kg beam of length 3.0 m is supported as shown.

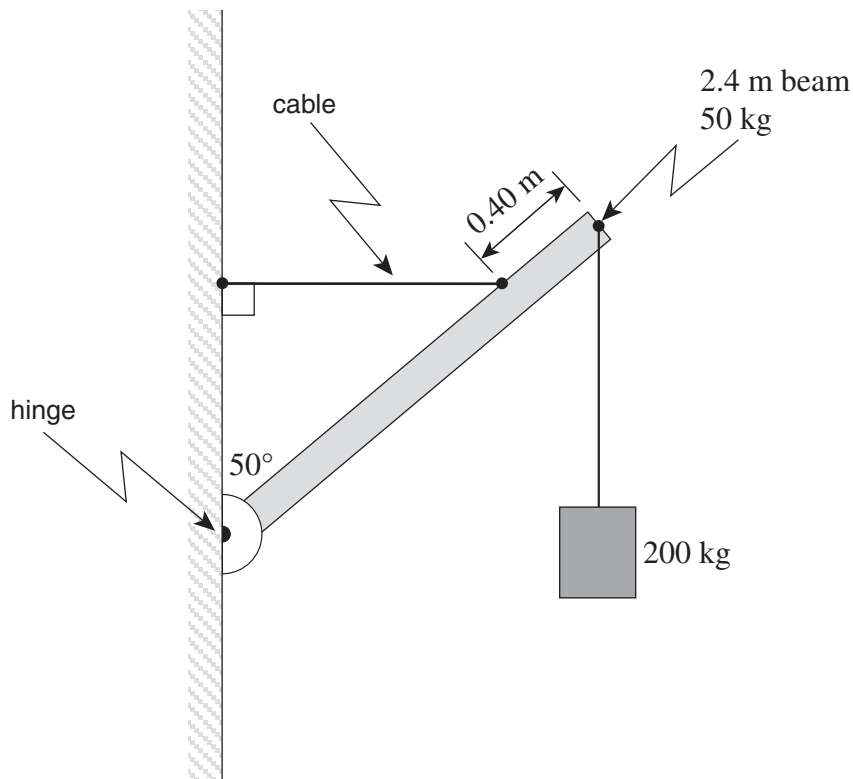


What is the tension  $T$  in the cable?

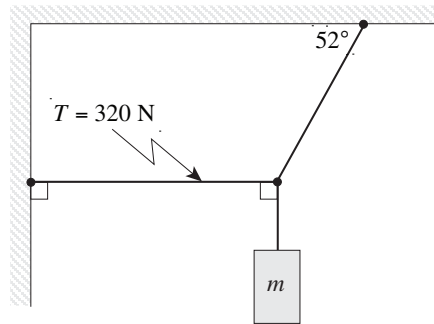
- A. 220 N
- B. 280 N
- C. 290 N
- D. 370 N

**(6 marks)**

A uniform 50.0 kg beam with a length of 2.4 m supports a 200 kg load. What is the tension in the horizontal cable attached to the beam as shown below?

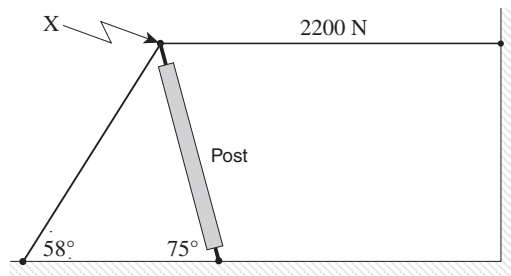


12. An object is supported by two cords as shown. The tension in the horizontal cord is 320 N. What is the mass  $m$ ?



- A. 26 kg
- B. 42 kg
- C. 53 kg
- D. 250 kg

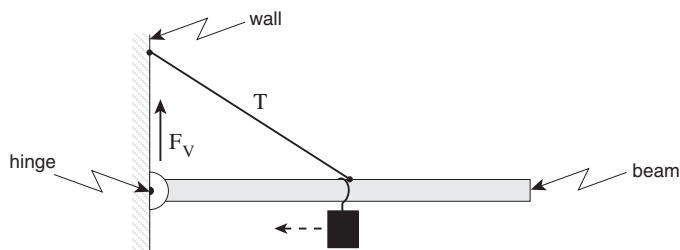
13. A post of negligible mass is supported by two cables as shown.



What is the force exerted by the post on point X?

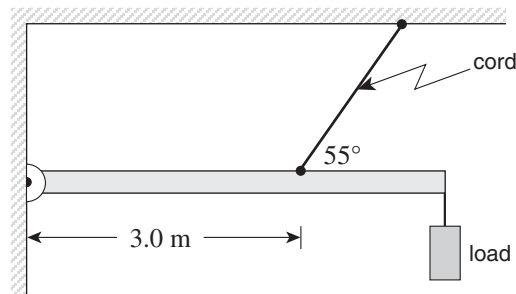
- A. 1100 N
- B. 2600 N
- C. 2900 N
- D. 5100 N

14. If the load on the uniform beam shown below is moved to the left, how do the tension force  $T$  and the magnitude of the vertical force  $F_V$  exerted by the wall on the hinge change?



	TENSION FORCE $T$	VERTICAL FORCE $F_V$
A.	Decrease	Increase
B.	Decrease	Decrease
C.	Increase	Increase
D.	Increase	Decrease

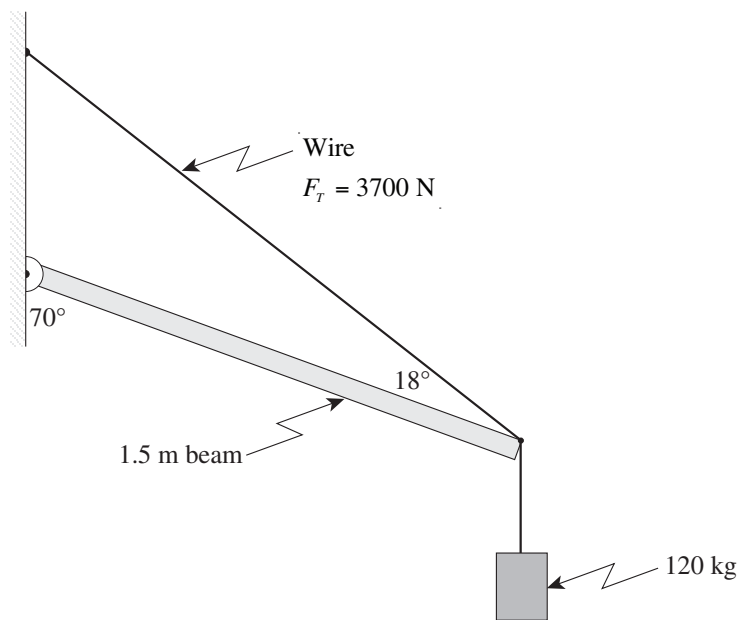
15. The horizontal uniform beam shown below is 4.0 m long and has a mass of 120 kg.



If the maximum tension allowed in the cord is  $2.7 \times 10^3$  N, what is the maximum load that can be hung from the end of the beam?

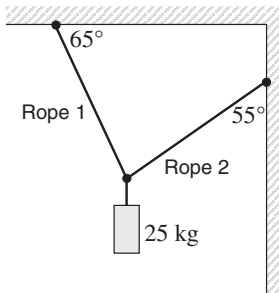
- A. 59 kg
- B. 110 kg
- C. 150 kg
- D. 230 kg

A 1.5 m-long uniform beam supports a 120 kg load. The beam is suspended by a wire as shown. This wire is under a tension of 3700 N.



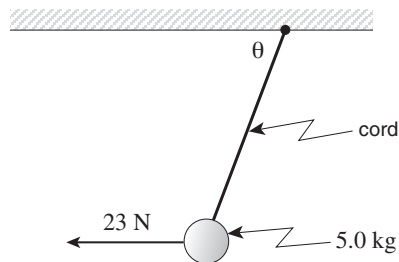
What is the mass of the beam?

12. A 25 kg block is shown suspended by two ropes. What is the tension in rope 2?



- A. 110 N  
 B. 120 N  
 C. 260 N  
 D. 430 N

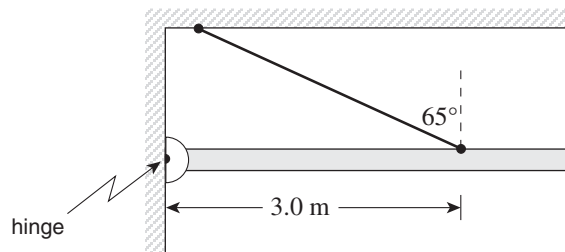
13. A 5.0 kg mass is suspended from a cord. The mass is held as shown with a horizontal 23 N force.



Find angle  $\theta$ .

- A.  $12^\circ$   
 B.  $62^\circ$   
 C.  $65^\circ$   
 D.  $78^\circ$

14. A uniform 3.5 m beam of mass 54 kg is supported by a cord attached at the 3.0 m position and at an angle as shown in the diagram. The tension in the cord is 730 N.



What is the magnitude of the torque produced by the cord about the hinge?

- A.  $310 \text{ N} \cdot \text{m}$   
 B.  $930 \text{ N} \cdot \text{m}$   
 C.  $2000 \text{ N} \cdot \text{m}$   
 D.  $2200 \text{ N} \cdot \text{m}$