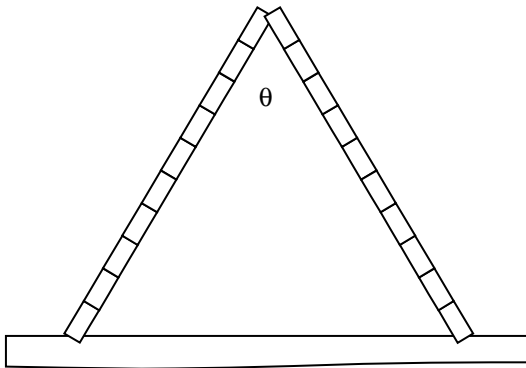
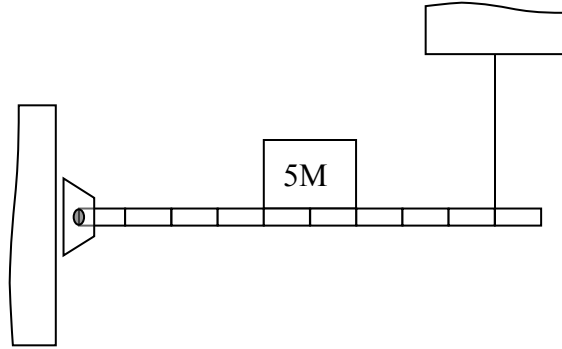


You may answer as many questions as you like. Please use the paper I have provided.

You only have this period to finish this quiz.

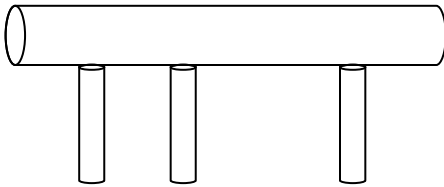
(FB) indicates a free-body diagram is expected for your reason.

1. What is the tension in the cord in the diagram to the right? The bar has a mass of M . (FB)(10)(10)



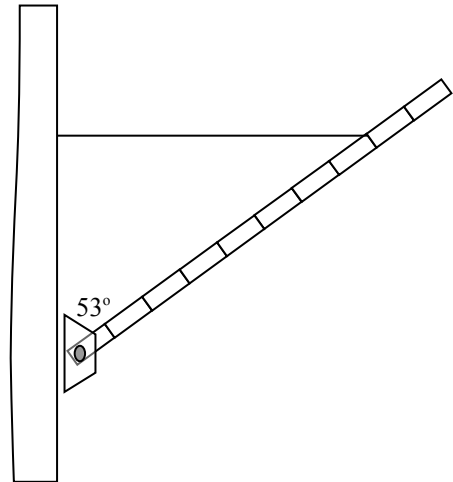
2.
A

sign is made of two sides, each of mass 2.00 kg that have a length of 0.90 m each and are connected by a frictionless hinge as shown to the left. The sign has a coefficient of friction with the floor of 0.67 . What is the maximum angle of spread for the sign? (FB)(10)(20)



3. Mr. Hoak is designing a new element for project adventure as is shown to the left. The log has a mass of 200 kg and is 8.00 m long. The supports are spaced from the left end at $1/6$, $1/3$ and $5/6$ along the length the log. What are the forces on each of the supports in this element? (FB)(10)(10)

4. What is the force at the hinge connecting this meter stick, mass 750 g , to the wall in the diagram to the right? (FB)(10)(10)



5. What would the minimum cross sectional area of a steel cable have to be if it was used for the cable in problem 4? (5)(15)

6. A nylon cord is under a tension of 325N when it is wrapped around a pole of diameter 5.00 cm. How many times will the cord wrap around the pole if the cord has a diameter of 1.00 mm and an original length of 45.0 cm? (5)(15)

7. What is the maximum vertical height that a uniform brick column can be built so it just supports its own weight? (10)(20)

8. Using weights of ??? balance the problem on the bottom of this page. Put solution in the diagram. (SO)(20)