

Reflection and Self-Assessment**Completion:** Circle the statement that best describes the completion of this practice.

- I completed every question on the practice.
- I did not complete some questions on the practice because:

Answer Checking: Circle the statement that best describes how you checked your answers

- I checked all my answers against the key at the back and corrected any that were incorrect.
- I did not check all my answers and correct any mistakes because:

Online Worked Solution: Circle the statement that best describes how you used the online worked solutions.

- I did not use the online worked solution at all.
- I used the online solution to understand some questions I got incorrect.
- I used the online solution to help me learn how to answer some questions.

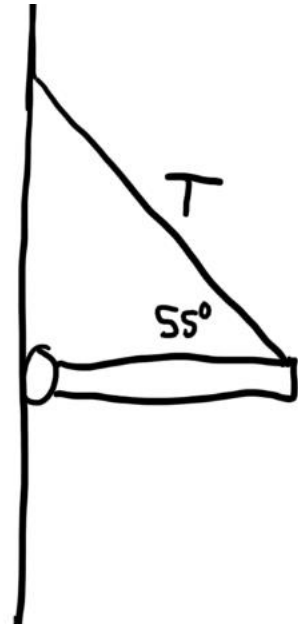
Confidence: Circle the statement that best describes your confidence in answering questions of this type in the future.

- I am confident I can answer nearly any question of this type correctly without using notes or other assistance.
- I am confident I can answer **MOST** questions of this type correctly without using notes or other assistance.
- I am **NOT** confident I can answer most questions of this type correctly without using notes or other assistance.

Time: Circle the statement below that best describes the total amount of time you spent actively working on this practice:

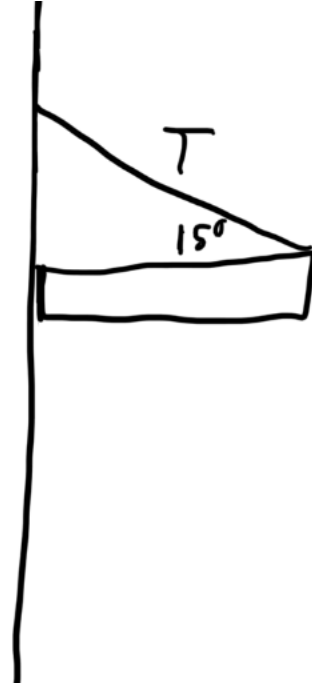
Less than an hour	Between one and two hours	Between two and three hours	Between three and four hours	More than four hours
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1. A 3.6 kg board of length 0.80 m is attached to a wall with a hinge and supported by a rope which makes a 55° angle with the board. What is the tension in the rope?



2. A 3.5 kg board is held against a wall by the force of friction and a rope which makes a 15° angle with the board.

a. What is the tension in the rope?

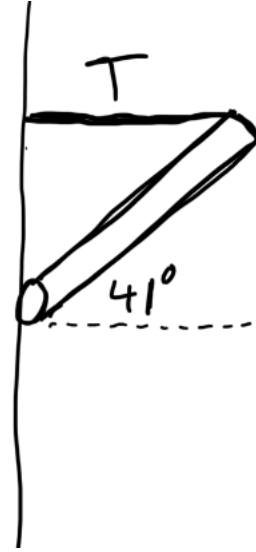


b. What is the normal force between the board and the wall?

c. What is the upwards support force provided by the friction?

d. What is the minimum value of μ between the wall and the board?

3. A board of mass 22 kg is attached to a wall via a hinge, and held at an angle of 41° above the horizontal by a rope as shown.
- a. What is the tension in the rope?

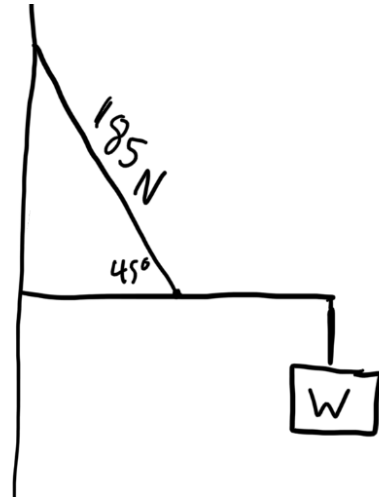


- b. What upwards support is the hinge providing?

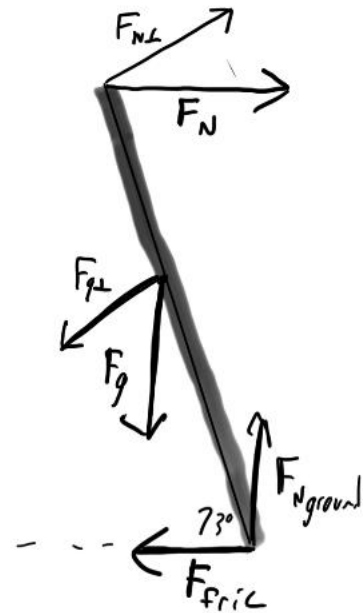
Torque not at 90° Practice

Name: _____

4. A board of negligible mass has an object hanging from its end. In the middle of the board a rope is attached at a 45° angle. The tension in the rope is 185 N. Determine the weight of the object hanging from the board.

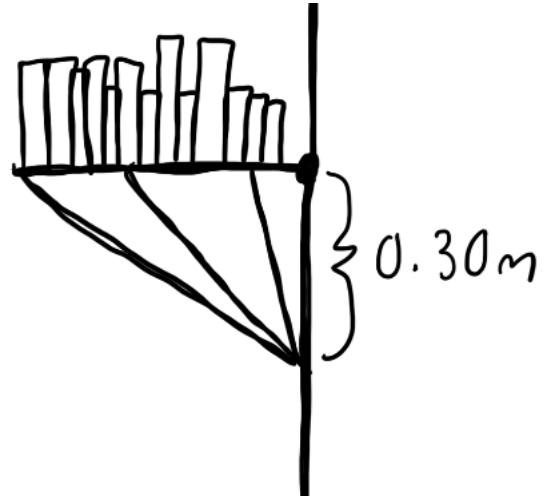


5. A 3.0 m long ladder of mass 15.0 kg leans against a building, no friction acts between the ladder and the building. The ladder makes an angle of 73° with the ground, a friction force acts on the base of the ladder to keep it from sliding.



- Determine the $F_{g\perp}$ for the ladder.
- Determine the perpendicular component of the normal force provided by the wall.
- Determine the normal force provided by wall.
- Determine the friction force acting on the base of the ladder.
- Determine the minimum coefficient of friction between the base of the ladder and the ground.

6. A 0.50 m long bookshelf is connected to the wall with a hinge, and supported by a single piece of wood between the wall and the bookshelf with the wall end 0.30 m below the bookshelf. The support can withstand 65 N before breaking. Where along the bookshelf should the other end of the support be placed to maximize the weight of books that can be placed on the shelf, and how much weight can be supported?



Torque not at 90° Practice

Name: _____

Answer Key				
1) 22 N	2a) 66N	2b) 64 N	2c) 17 N	2d) 0.27
3a) 124 N	3b) 220 N	4) 65 N	5a) 43 N	5b) 21 N
5c) 22 N	5d) 22 N	5e) 0.15	6) At far end, 67 N	