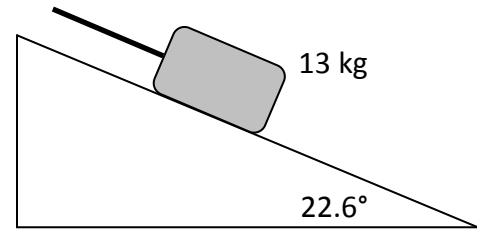


Forces Homework 3

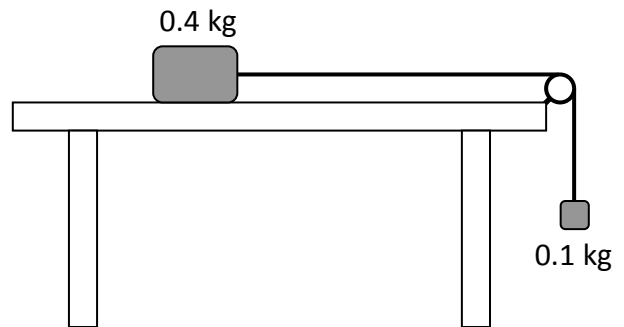
Name: _____

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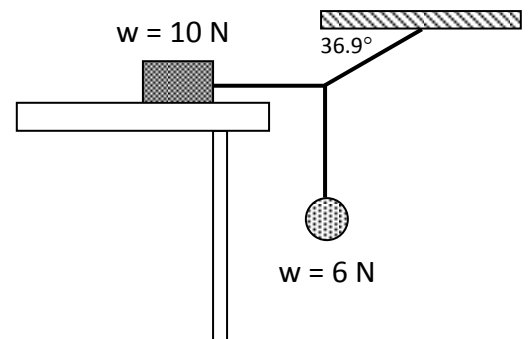
1. The 13 kg box on the *frictionless* ramp is held at rest by the string tension force.
 - a. Draw a force diagram for the box.
 - b. Determine the value of the string tension force.
 - c. Determine the value of the normal force?



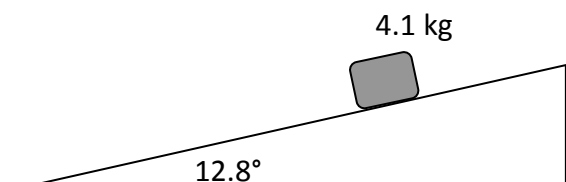
2. A 0.4 kg block is attached to a 0.1 kg block by a light string over a pulley. Friction between the big block and the table keep the blocks at rest.
 - a. Draw a one force diagram for each block.
 - b. Determine the frictional force between the block and the table.
 - c. Determine the tension in the string.



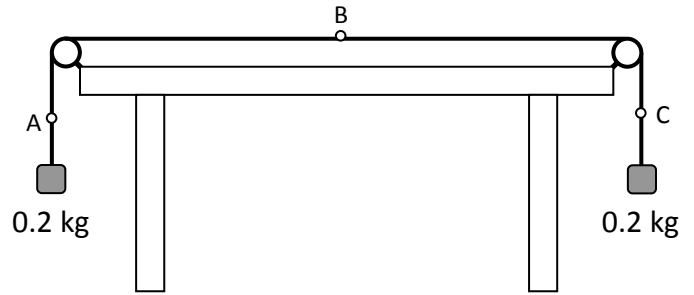
3. The system below is at rest the ball weighs 6 N.
 - a. Draw 3 force diagrams – ball, block, intersection of strings.
 - b. Find the tensions in the ropes?
 - c. Find the frictional force between the block and the table.



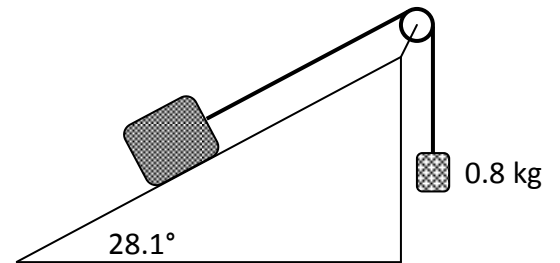
4. The 4.1 kg box sits motionless on a *frictionful* ramp.
 - a. Draw a force diagram for the box.
 - b. What is the value of the frictional force?
 - c. What is the value of the normal force?



5. A 0.2 kg block is attached to another 0.2 kg block by a light string over two pulleys.
- Draw a one force diagram for each block.
 - Determine the tension in the string at points A, B and C.



6. A block is sitting on a *frictionless* ramp and is attached to a 0.8 kg block by a light string over a pulley. The system is in equilibrium; i.e. acceleration is zero.
- Draw a one force diagram for each block.
 - Determine the tension in the string.
 - Determine the **mass** of the large block.



7. In the system below, the pulleys are frictionless and the system hangs at static equilibrium. w_1 is 200 N.
- Draw a force diagram for each block and the intersection of the three strings.
 - Determine the values of tension in each string.
 - Determine the values of w_2 and w_3 .

