

Extra credit question: (10 points)

Blocks A and B, with masses 20.0 kg and 10.0 kg respectively, are located and connected as shown below. The coefficient of kinetic friction between the blocks is 0.10 and the coefficient of kinetic friction between block A and horizontal surface is also 0.10. Assume that the pulley and the string's mass is negligible and is frictionless. If a student pulls on block A to the right with a force, the force F_0 in the below sketch, of 500.N Please carefully answer the following questions:



1. What is the direction of the friction on B?
2. What is the reaction of the force in previous question?
3. What is the direction of the friction between the bottom surface of A and ground?
4. How many forces are there on A?
5. How many Newtons is the Normal force on B?
6. How many Newtons is the Normal force on A?
7. Please draw the free body diagram for B.
8. Please draw the free body diagram for A.
9. Does the accelerations of A and B have same magnitudes?
10. What is the magnitude of the acceleration of A?