

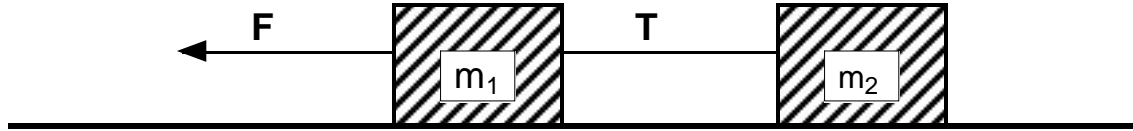
NAME _____

PHYSICS HOMEWORK QUIZ #6 D

PERIOD _____

NEWTON'S FIRST LAW

A mass of $m_1 = 6.0$ kg is sitting on a horizontal surface which has a coefficient of sliding friction of $\mu_k = 0.663$. A force F is applied to this mass so as to pull the mass to the left at a constant speed. This mass is in turn attached to a second mass $m_2 = 4.0$ kg by a string which has a tension T .



1. On the diagram to the right indicate all of the forces acting on mass m_1 as it moves to the left at a constant speed. [3 pts]

2. What will be the magnitude of the frictional force acting on m_2 as it moves to the left at a constant speed? [3 pts]



3. What will be the magnitude of the tension T in the string between m_1 and m_2 as this system is pulled to the left at a constant speed? [3 pts]

4. What is the magnitude of the applied force F ? [3 pts]

5. A child is sitting on a swing as shown to the right. The child's father is holding the child and swing in the position shown and in the process exerts a force F to the left on the child-swing. The mass of the child-swing combination is 28 kg and the angle between the ropes of the swing and the vertical is $\alpha = 35^\circ$. What is the tension in the ropes of the swing? [3 pts]

