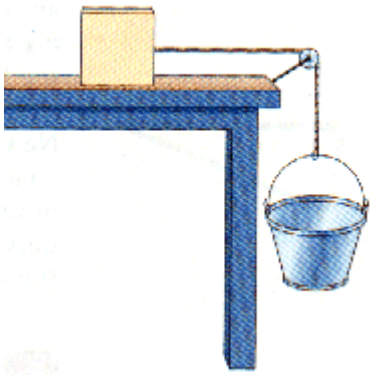
6. 26.0 kg block is connected to an empty 1.00 kg bucket by a massless cord running over a frictionless pulley*. The coefficient of static friction between the table and the block is 0.48 and the coefficient of kinetic friction between the table and the block is 0.30. Sand is gradually added to the bucket until the system just begins to move.



   A. Calculate the normal (supporting) force on the block by the table.

   B. Calculate the maximum friction force that can be applied by the table to the block.

   C. Calculate the mass of sand added to the bucket.

   D. What mass of sand in the bucket would cause the bucket to descend at a constant speed?

*