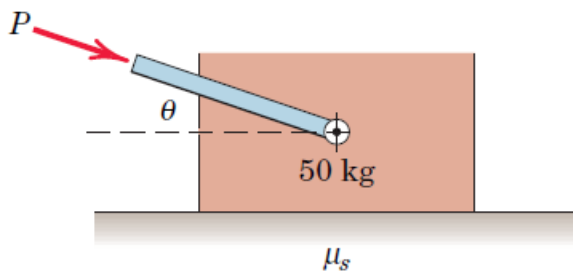


**Session: 2**

1. Explain the angle of repose with neat sketch.
2. The 50-kg block rests on the horizontal surface, and a force  $P = 200$  N, whose direction can be varied, is applied to the block. (a) If the block begins to slip when  $\theta$  is reduced to  $30^\circ$ , calculate the coefficient of static friction  $\mu_s$  between the block and the surface. (b) If  $P$  is applied with  $\theta = 45^\circ$ , calculate the friction force  $F$ .



3. The 400- N force  $P$  is applied to the 100-kg crate, which is stationary before the force is applied. Determine the magnitude and direction of the friction force  $F$  exerted by the horizontal surface on the crate.

