

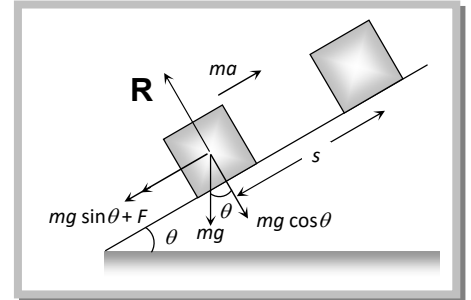
Work Done Against Friction.

(1) Work done over a rough inclined surface

If a body of mass m is moved up on a rough inclined plane through distance s , then

Work done = force \times distance

$$\begin{aligned} &= ma \times s \\ &= mg [\sin \theta + \mu \cos \theta] s \\ &= mg s [\sin \theta + \mu \cos \theta] \end{aligned}$$



(2) Work done over a horizontal surface

In the above expression if we put $\theta = 0$ then

Work done = force \times distance

$$\begin{aligned} &= F \times s \\ &= \mu mg s \end{aligned}$$

It is clear that work done depends upon

- (i) Weight of the body.
- (ii) Material and nature of surface in contact.
- (iii) Distance moved.

