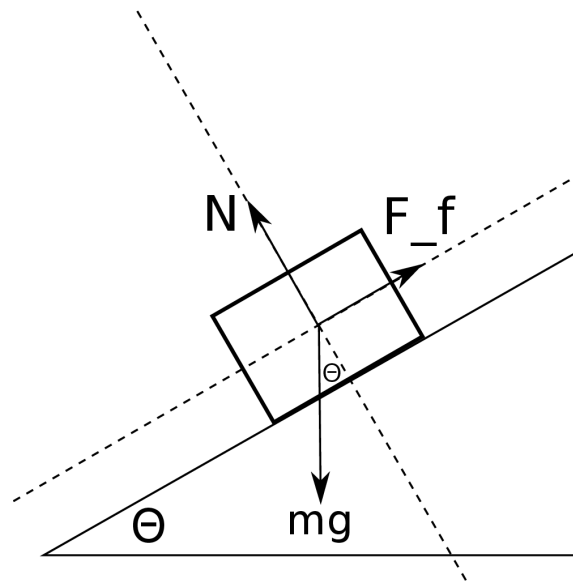


### Question 32554



For motion over inclined plane, projection on axis, which is perpendicular to the surface of the plane gives:  $N = mg \cos \varphi$  ,  $\varphi$  is the angle of inclination.

Projection over axis, parallel to the plane, together with 2<sup>nd</sup> Newton's law (  $\vec{F} = m\vec{a}$  ) gives:

$ma = mg \sin \varphi - F_f$  .  $F_f$  is the friction force, which is calculated as  $F_f = \mu N = \mu mg \cos \varphi$  (  $\mu$  is the friction coefficient,  $\mu = 0.25$  ).

Hence,  $a = g \sin \varphi - \frac{F_f}{m} = g \sin \varphi - \mu g \cos \varphi = 3.95 \frac{m}{s^2}$  .