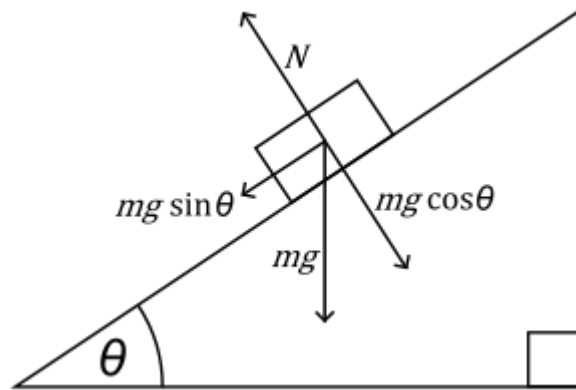


### Answer on Question #65563, Physics / Other

It is observed that all bodies sliding down a frictionless inclined plane have the same acceleration. How does it happen? Explain.

**Answer:**



$N$  = normal force that is perpendicular to the plane

$m$  = mass of object

$g$  = acceleration due to gravity

$\theta$  (theta) = angle of elevation of the plane, measured from the horizontal

From free-body diagram one can see that

$$F_{net} = mg \sin \theta = ma$$

Thus, the acceleration of any body sliding down the inclined plane is given by

$$a = g \sin \theta$$

This formula is showing that the acceleration of any body is independent of the mass or radius or something else. It only depends on the value of  $g$  and the angle of inclined surface with the horizontal.

Answer provided by <https://www.AssignmentExpert.com>