

Example: Sliding Up the Plane

A coffee mug of mass $m = 0.5$ kg at the base of an inclined plane sitting on a table is given a push and begins sliding up the plane with an initial speed of 3.5 m/s. The coefficient of kinetic friction between the cup and the plane is $\mu_k = 0.2$ and the coefficient of static friction is $\mu_s = 0.4$.

(a) What is the maximum height of the cup above the tabletop?

(b) Once the cup reaches that maximum height, what happens to it? Does it slide down again or just sit there?

