Therefore, we now get

\[ V_{\text{gravity}} = Mgh = Mgh + Mg \sin \phi \]

\[ Z = I_m (\dot{y}^2 + \dot{z}^2) = \frac{1}{2} I_m (\dot{y}^2 + \dot{z}^2) \]

\[ M = a \cos \phi + a \sin \phi \]

\[ Y = a \cos \phi \]

\[ Z = a \sin \phi \]

Let \( N = a \sin \phi \)

The support point moves up and down.

Suppose the support point be the vertical location of the mass.