

# 1 Applying Newton's Laws

## 1.1 Gravity

Block Slides down Fixed Wedge

Free Body Diagram

$$m\vec{a} = m\vec{g} + \vec{N}$$

Constraints

$$\begin{aligned}\vec{a} \cdot \hat{y} &= a_y = 0 \\ N_x &= 0\end{aligned}$$

$$\begin{aligned}ma_y &= -mg\cos(\theta) + N_y \\ mg\cos(\theta) &= N_y\end{aligned}$$

$$\begin{aligned}ma_x &= mg\sin(\theta) - N_x \\ ma_x &= mg\sin(\theta)\end{aligned}$$

## 1.2 Normal Forces

## 1.3 Tension