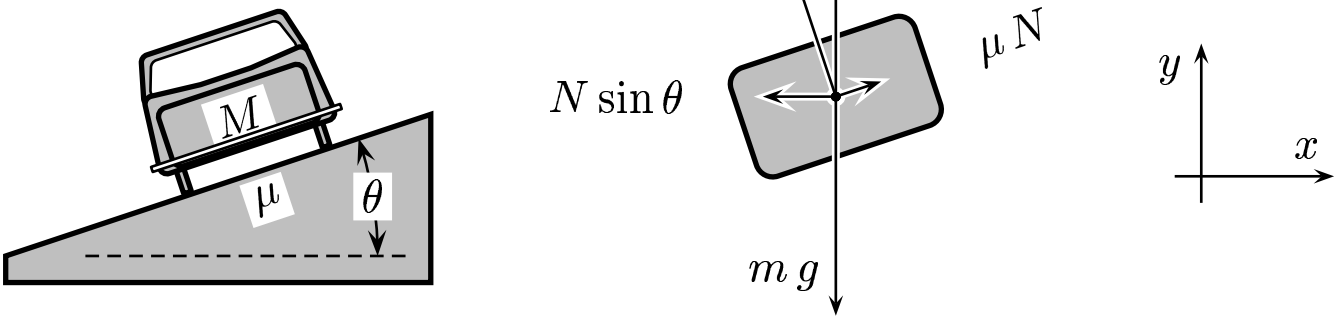
Consider the case where the speed of a car is less than the optimal speed. There are three forces acting on the car: the uphill friction $f = \mu \mathcal{N}$, the normal force by the road N, and the weight $m\,g$. The equation of motion is given by the vector equation $\vec{N} + m\,\vec{g} + \vec{f} = \vec{F}_{cp}$.



Which one of the vertical equations below is correct?

A) $N_y + |\,f_y\,| = m\,g\,.$

B) $N_y - |\,f_y\,| = m\,g\,.$

Explanation: Adding the component to the diagram above, one finds for the y-component equation is $N_y + |f_y| = m\,g$.

Answer **A**.

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