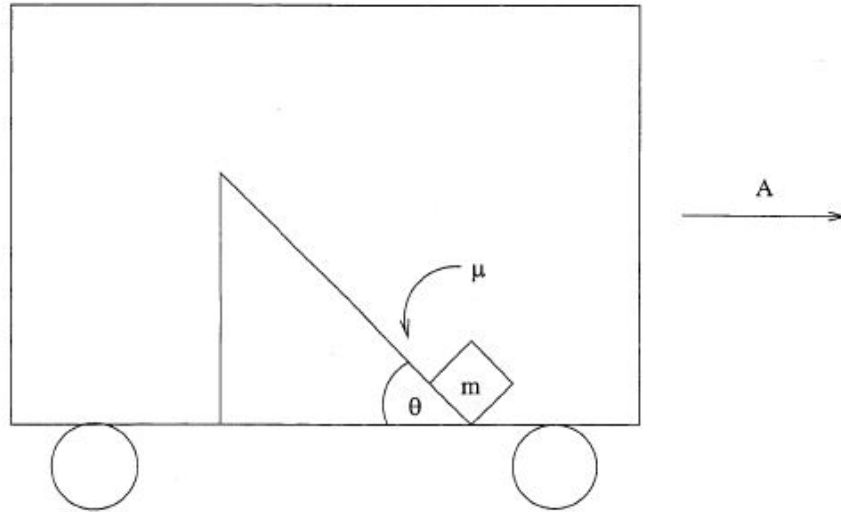


QP29

A block of mass m sits on the bottom of an inclined plane of angle θ and friction μ . The whole assembly is inside a car, and the incline is fixed to the car's floor. Throughout the problem, assume the block remains in contact with the incline.



- a) (1 point) The car takes off with acceleration A to the right. Describe the fictitious force needed in the rest frame of the car. What is its magnitude and direction on the block?
- b) (2 points) Assuming the block begins to move up the incline, draw a force diagram and write down Newton's laws.
- c) (3 points) Solve for the acceleration of the block up the incline, in terms of A , θ , μ and g . If $A = 2g$ and the coefficient of friction $\mu = 0.5$, what is the condition on θ so that the block will indeed move up the incline?