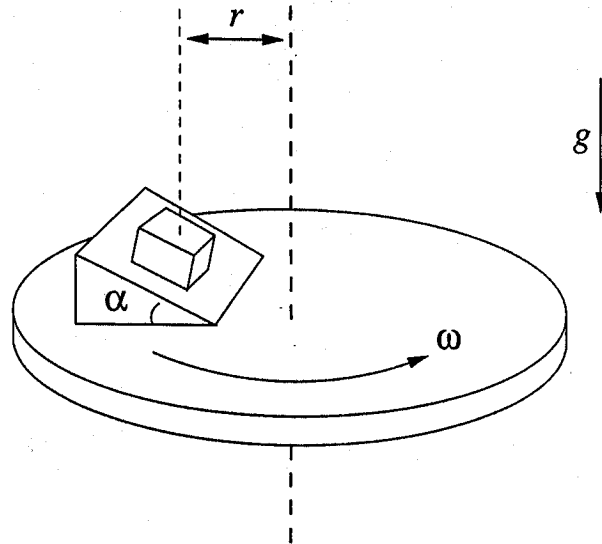


Problem 3 (3 points)



An inclined plane of angle α is glued onto a horizontal turntable, as shown in the figure. A block is placed on the inclined plane a distance r from the axis of rotation of the turntable, and the coefficient of friction between the block and the plane is μ . The turntable spins about its axis with constant angular frequency ω .

- (a) (1 point) Draw a free body diagram for the block, showing the forces that act on it.
- (b) (2 points) Find an expression for the minimum angular velocity, ω_c , to keep the block from sliding down the plane, in terms of g , r , μ , and the angle of the plane α .