

A Stoppable Force Meets an Immovable Object

Consider a plane inclined at angle θ , with $0^\circ < \theta < 90^\circ$. On this plane is a block with mass m and there is a coefficient of static friction μ_s between them. You apply a force F to the block at an angle φ measured from the plane, with $0^\circ < \varphi < 90^\circ$. What must the minimum value of μ_s be so that no matter how hard you push, the block will not move? If there are multiple possible values, under what conditions will each apply?

