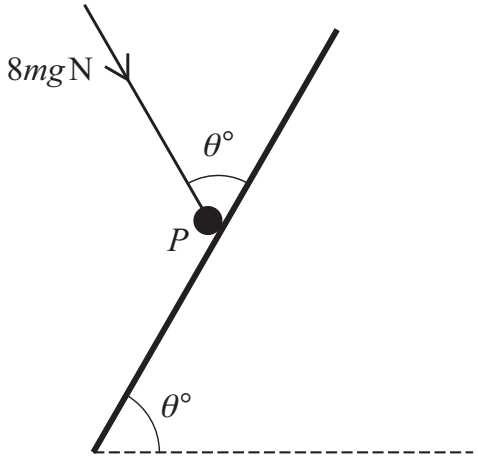
5



A particle P of mass m kg is in equilibrium on a rough plane inclined at an angle $\theta°$ to the horizontal. The equilibrium of P is maintained by a force of magnitude $8mg$ N making an angle $\theta°$ with a line of greatest slope (see diagram). The coefficient of friction between P and the plane is 0.5 and P is on the point of slipping down the plane.

Find the value of θ. [6]

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