

A particle P of mass 0.2 kg is released from rest at a point O on a smooth horizontal surface. A horizontal force of magnitude $te^{-v}\text{ N}$ directed away from O acts on P , where $v\text{ m s}^{-1}$ is the velocity of P at time $t\text{ s}$ after release. Find the velocity of P when $t = 2$. [4]