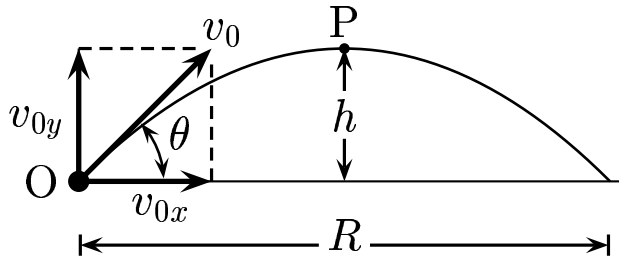A projectile trajectory has a maximum height h, a range R. The mass is m and the initial speed v_0. The angle between the initial velocity vector and the horizontal direction is θ.

Determine the torque τ at P with respect to O.

A) $\quad \tau = \dfrac{m\,g\,R}{2}$.

B) $\quad \tau = m\,g\,h$.

C) $\quad \tau = h\,m\,v_{0x} = h\,m\,v_0\,\cos\theta$.

By inspection, at P the force is $m\,g$ and the level arm, that is the perpendicular distance from O to the force line, which is the vertical line through P, is $\dfrac{R}{2}$.

Answer **A**.

11.03-01˙Torque˙at˙P˙about˙O 2004-3-24