

A small ball is projected from a point O on horizontal ground at an angle of 30° above the horizontal. At time t s after projection the horizontal and vertically upwards displacements of the ball from O are x m and y m respectively. It is given that $x = 40t$.

(i) Calculate the initial speed of the ball, and express y in terms of t . [3]

(ii) Hence find the equation of the trajectory of the ball. [2]