6 A particle P is projected with speed u m s^{-1} at an angle θ above the horizontal from a point O and moves freely under gravity. After 5 seconds the speed of P is $\frac{3}{4}u$.

(a) Show that $\frac{7}{16}u^2 - 100u\sin\theta + 2500 = 0$. [3]

(b) It is given that the velocity of P after 5 seconds is perpendicular to the initial velocity.

Find, in either order, the value of u and the value of $\sin\theta$. [5]