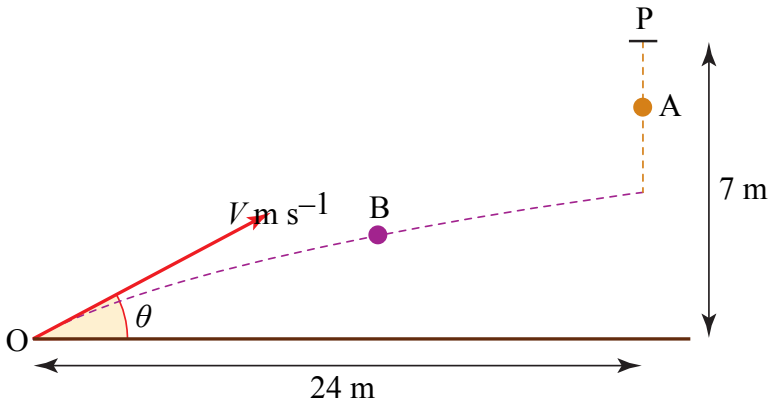
Leave blank

A particle A is released from rest at time $t = 0$, at a point P which is 7 m above horizontal ground. At the same instant as A is released, a particle B is projected from a point O on the ground. The horizontal distance of O from P is 24 m. Particle B moves in the vertical plane containing O and P, with initial speed V m s^{-1} and initial direction making an angle of θ above the horizontal (see diagram).



Write down

(a) An expression for the height of A above the ground at time t s, **6**

(b) An expression in terms of V, θ and t for **4**

(i) The horizontal distance of B from O

(ii) The height of B above the ground

At time $t = T$ the particles A and B collide at a point above the ground.

(c) Show that $\tan\theta = \frac{7}{24}$ and that $VT = 25$. **6**

(d) Deduce that $7V^2 > 3125$. **(4**

0