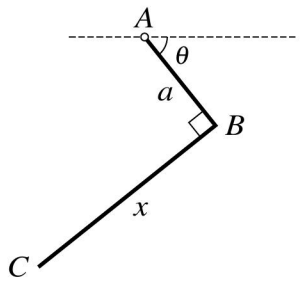

ABC is an object made from a uniform wire consisting of two straight portions *AB* and *BC*, in which $AB = a$, $BC = x$ and angle $ABC = 90°$. When the object is freely suspended from *A* and in equilibrium, the angle between *AB* and the horizontal is θ (see diagram).

(i) Show that $x^2 \tan\theta - 2ax - a^2 = 0$. [3]

(ii) Given that $\tan\theta = 1.25$, calculate the length of the wire in terms of a. [2]