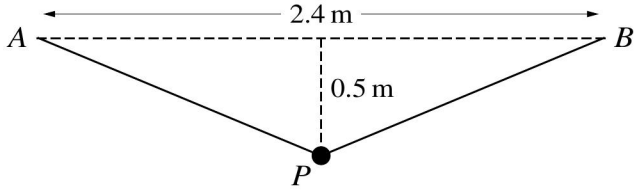

A light elastic string has natural length 2 m and modulus of elasticity 39 N. The ends of the string are attached to fixed points A and B which are at the same horizontal level and 2.4 m apart. A particle P of mass m kg is attached to the mid-point of the string and hangs in equilibrium at a point 0.5 m below AB (see diagram).

(i) Show that $m = 0.9$. [4]

P is projected vertically downwards from the equilibrium position, and comes to instantaneous rest at a point 1.6 m below AB.

(ii) Calculate the speed of projection of P. [5]