



A particle of weight 10 N is attached to one end of a light elastic string. The other end of the string is attached to a fixed point A on a horizontal ceiling. A horizontal force of 7.5 N acts on the particle. In the equilibrium position, the string makes an angle θ with the ceiling (see diagram). The string has natural length 0.8 m and modulus of elasticity 50 N .

(a) Find the tension in the string. [2]

(b) Find the vertical distance between the particle and the ceiling. [3]