K Education Centre

AS Mechanics -Forces And Equilibrium-1
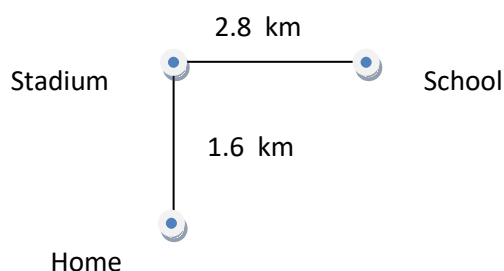
Assignment Questions

Forces and Equilibrium-1 :

Q1 : A 3 N force and 4 N force act at right angles to one and another. A third force is applied and now the system is in equilibrium. What is magnitude of third force?

Q2: Fig shows the location of a stadium and school from home.

a) Calculate the distance of school from home.

b) A person standing at home , facing Stadium. He then turns clockwise to face the school. Calculate the size of through which person has turned.

Q3: A small object of weight 8 N is at rest on a rough slope , which is at angle of 45^0 to the horizontal.
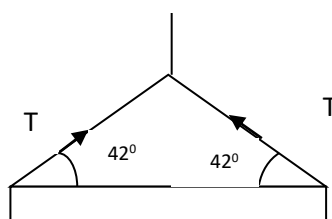
a) Sketch a diagram and show forces acting on the object.

b) Calculate i) the frictional force on the object ii) support force from the slope on the object.
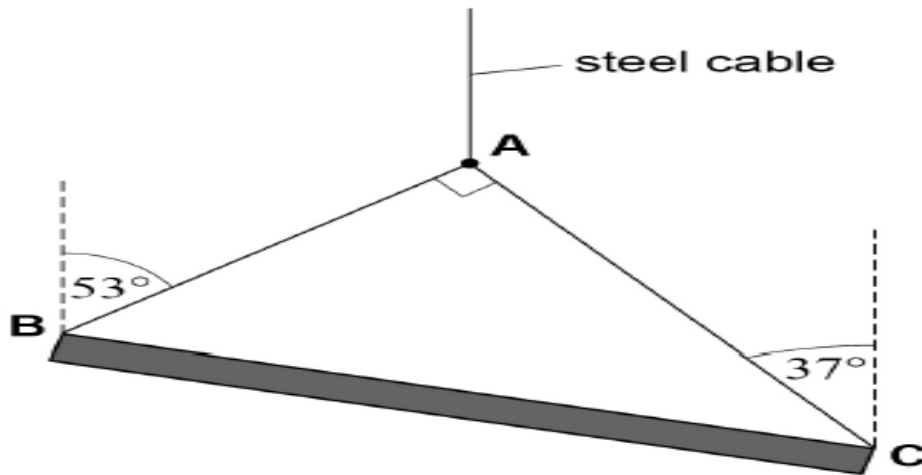
Q4 : Fig shows a uniform steel bar held from a crane. If tension T in each cable is 800 N.

Calculate : i) Horizontal and vertical components of the tension in each cable.

ii) The weight of the steel bar.

Q 5: **Figure** shows a uniform beam supported by two light cables, **AB** and **AC**, which are attached to a single steel cable from a crane. The beam is stationary and in equilibrium.

The weight of the beam is $12\ 000\ N$ .Calculate the tension T_1 in cable **AB** and the tension T_2 in cable **AC**.

Q6: An archer pulled a bowstring back until the two halves of the string are at 150^0 to each other as shown in figure, If the force needed to hold string in the position was 90 N. Calculate the tension in each part of the bowstring in this position.