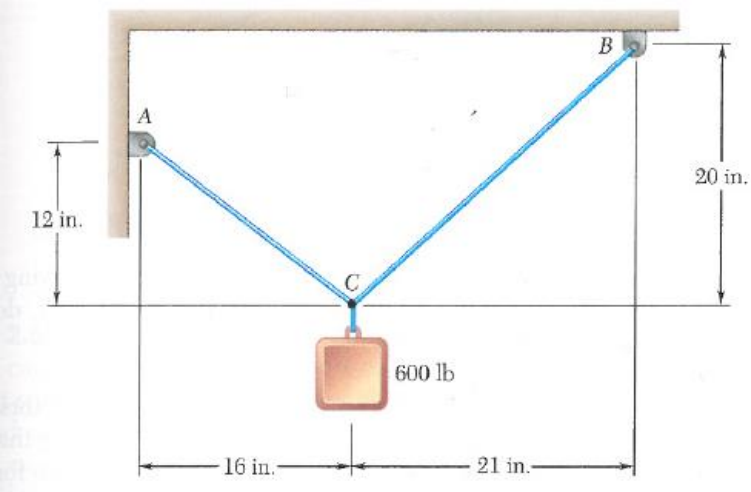
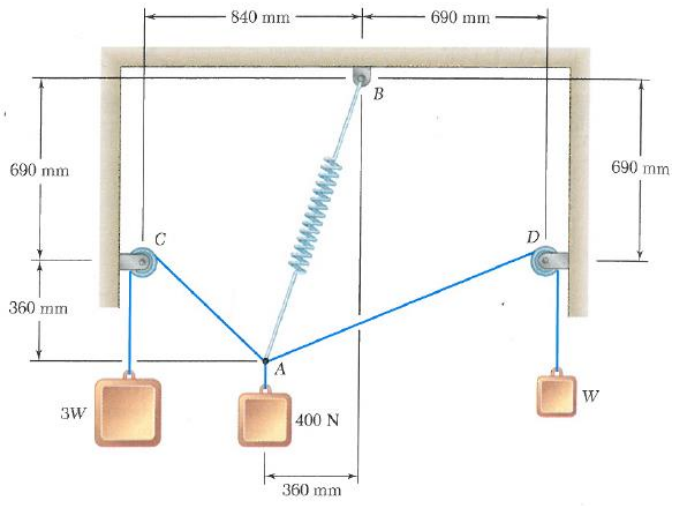
HOMEWORK 2

Q1)



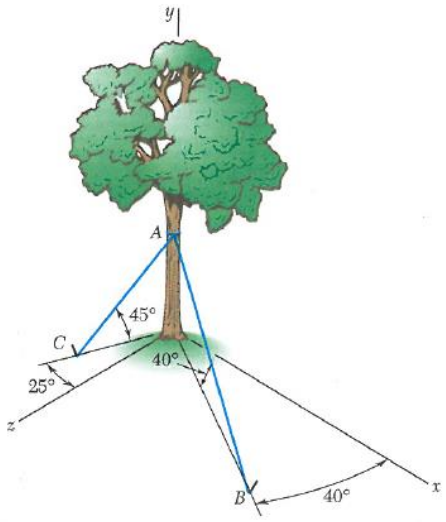
Two cables are tied together at C and are loaded as shown. Determine the tension (a) in cable AC, (b) in cable BC.

Q2)



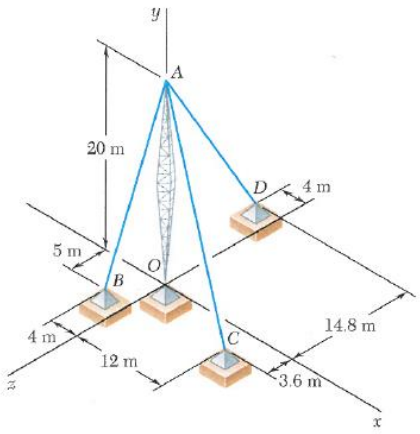
A load of weight 400 N is suspended from a spring and two cords which are attached to the blocks of weight 3W and W as shown. Knowing that the constant of the spring is 800N/m, determine (a) the value of W, (b) the unstretched length of the spring.

Q3)



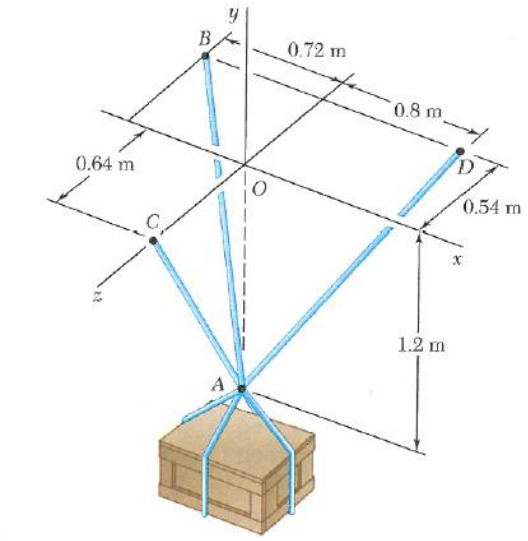
To stabilize a tree partially uprooted in a storm, cables AB and AC are attached to the upper trunk of the tree and then are fastened to steel rods anchored in the ground. Knowing that the tension in cable AB is 4.2 kN, determine (a) the components of the force exerted by this cable on the tree, (b) the angles θ_x, θ_y and θ_z that the force forms with axes at A which are parallel to the coordinate axes.

Q4)



A transmission tower is held by three guy wires anchored by bolts at B,C and D. If the tension in wire AB is 2100 N, determine the components of the force exerted by the wire on the bolt at B.

Q5)



A 750-kg crate is supported by three cables as shown. Determine the tension in each cable.