

NAME:

NO. STUDENT :

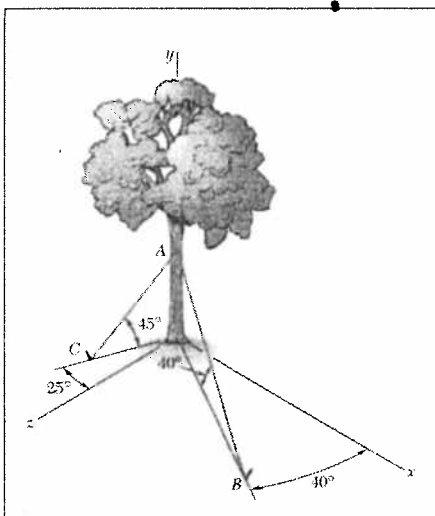
GNG 1105 2X- MECHANICS FOR ENGINEERS

Mid Term Exam
July 11th, 2011
Prof Girault

Duration: 120 minutes
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Closed book. All calculators allowed but no laptop. Draw free body diagrams for all those exercises

Total of the marks: 50



PROBLEM 1 (10 notes)

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 950 N , 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.

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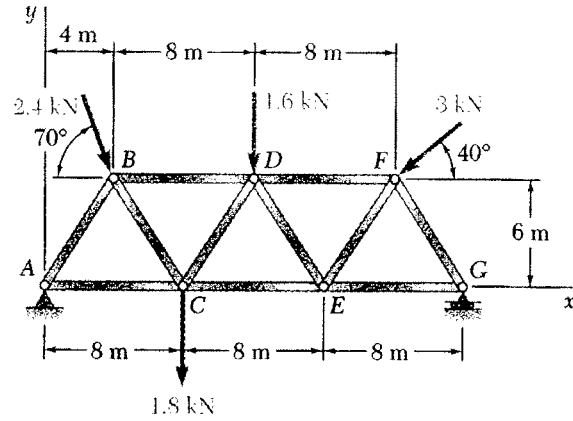
PROBLEM III (14 marks)

a)

Calculate the resultant force of external forces applied to this truss,

Give magnitude and direction

b) Single equivalent force R and point where its line of action intersects a line drawn through AG



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PROBLEM IV (10 marks)

A rectangular plate is supported by three cables as shown. Knowing that the tension in cable AD is 120 N, determine the weight of the plate.

