UNIVERSITY OF TORONTO
Faculty of Applied Science and Engineering

TERM TEST, OCTOBER 26, 2010
First Year - Programs 1,2,3,4,6,7, 8 and 9

CIV 100F - MECHANICS
Examiner: Staff in Civil Engineering

FAMILY NAME: _____ GIVEN NAMES: _____

(Please **print clearly**)

STUDENT NUMBER: _____

CIRCLE THE NAME OF YOUR LECTURER AND YOUR GROUP LETTER

A	**Kuhn**, Eva	**D**	**Grasselli**, Giovanni	**G**	**Johnson**, David
B	**Zhang**, Jinyue	**E**	**El-Diraby**, Tamer	**H**	**Seica**, Michael
C	**Grasselli**, Giovanni	**F**	**Kamaleddine**, Fouad	**J**	**Packer, Jeff**

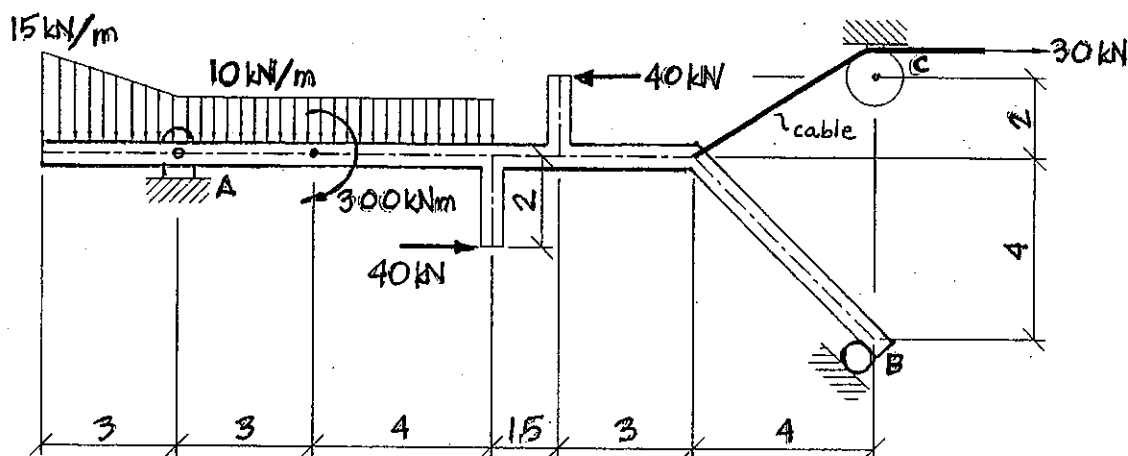## CIRCLE MODEL NUMBER OF CALCULATOR

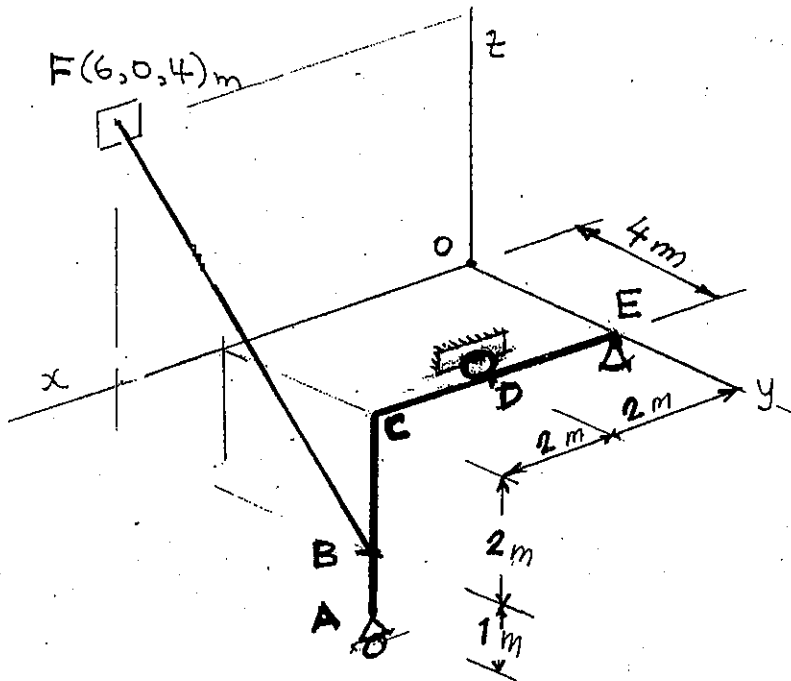CASIO 260 SHARP 520 TI 30

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1. The bent beam below is supported by a pin at A and roller at B. For the given loading:

i) Draw a free body diagram of the beam showing all forces
ii) Calculate the support reactions at A and B

Note: All lengths are in meters. Drawing not to scale. The pulley at C has radius 0.5m.

2. The L shaped bent bar **ABCDE** is supported by a ball and a socket at **E**, a roller at **D** which provides a restraint in the **y** direction and a support at **A** which provides restraint only in the **y** and **z** direction. **EC** is parallel to the **x** axis and **CA** is parallel to the **z** axis(vertical). Cable **BF** is tightened until the tension is 70 kN. Determine the reactions at **A** and **D** and **E**.

3. (a) Using the Method of joints, determine the forces in all members of the pin connected truss shown in Figure (a). Indicate whether each member is loaded in tension (T) or compression (C).

(b) Use the Method of Sections to determine the force in member **DF** of the truss shown in figure (b). You can use **only one** section. Indicate if **DF** is in tension or compression.

(a)

(b)