



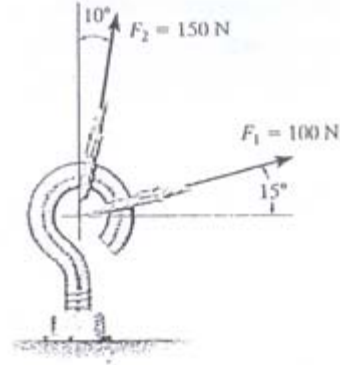
Alexandria Higher Institute of Engineering & Technology (AIET)		
Department of: General	Preparatory Year	0 th Year
ME001	Mechanics I	Makeup, Dec., 17, 2014
Examiners:	Dr. Raafat Ayad and Dr. Rola Afify	Time: 1.5 hours

Answer the following questions:

Question one: (5 marks)

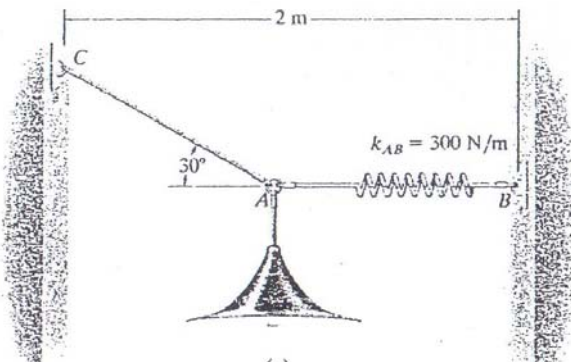
The screw eye in Fig (1) is subjected two forces F_1 and F_2 determine the magnitude and direction of the resultant force.

- a) Graphically using the parallelogram law of addition.
- b) Mathematically.



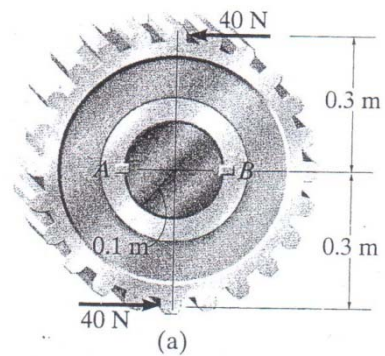
Question Two: (4 marks)

Determine the required length of cord AC in Fig (2) so that the 8 Kg lamp is suspended in the position shown. The undeformed length of spring AB is $L'_{AB} = 0.4$ m and the spring has a stiffness of $K_{AB} = 300$ N/m



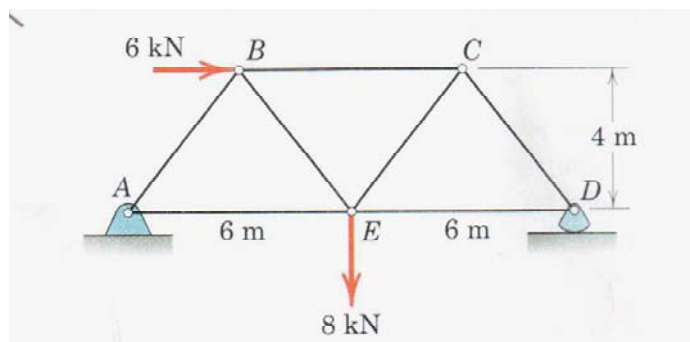
Question Three: (4 marks)

A couple acts on the gear teeth as shown in Fig (3). Replace it by an equivalent couple having a pair of Forces that acts through points A and B and showing its direction.



Question Four: (7 marks)

Calculate the force in each member of the loaded truss. Specify whether the members are in tension or in compression.



Good Luck 1/1
Dr. Raafat Ayad
Dr. Rola Afify