|	Alexandria Higher Institute of Engineering & Technology (AIET)	
	General	Preparatory Year
	ME001 Mechanics I	Mid Term, Oct.,24,2009
	Examiners: Prof. Dr. Abd Elfatah Rezk and Dr. Rola Afify	Time: 1.5 hour

Answer the following questions:

1- The hook supports the two cable forces $F_1 = 500$ N and $F_2 = 300$ N. If the resultant of these forces acts vertically downward and has a magnitude of $F_R = 750$ N, determine graphically the angles θ and ϕ of the cables.
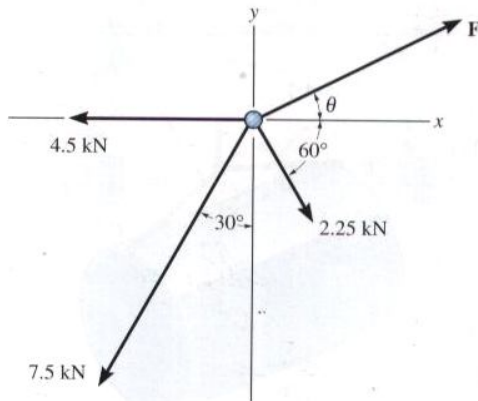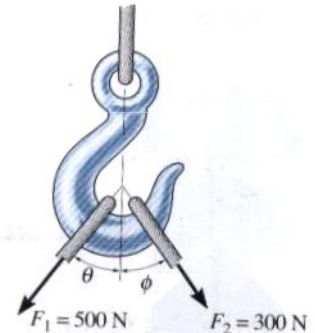
2- Determine the magnitude of angle θ of F so that the particle is in equilibrium.

3- Replace the three forces acting on the shaft by a single resultant force. Specify where the force acts, measured from point B?.
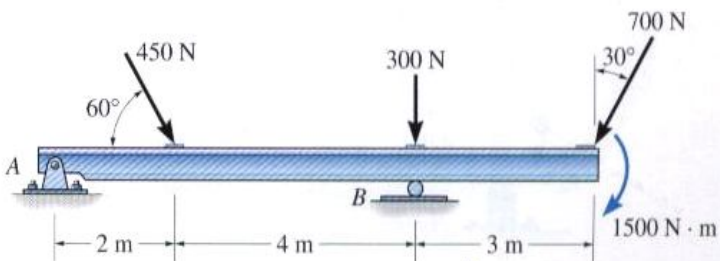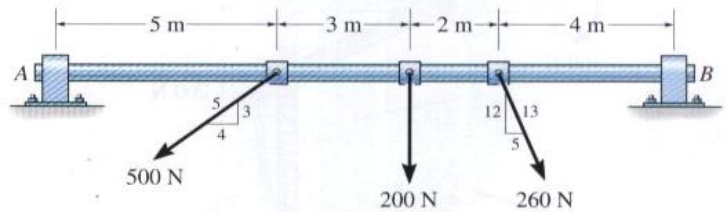
4- Determine the horizontal and vertical components of reactions for the hinge at point A and roller at point B. Neglect the weight of the beam in the calculations.

Good Luck