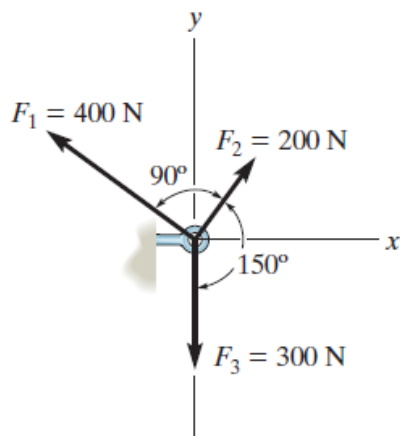
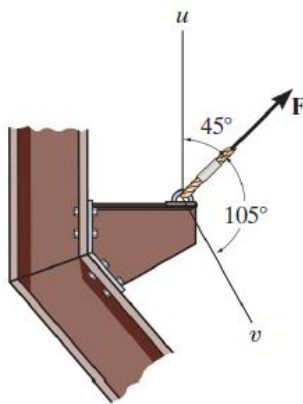


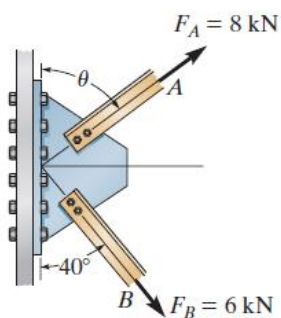
PS #1**K.T.U.**
DEPARTMENT of CIVIL ENGINEERING
STATICS PROBLEM SET #1 (1/6)**1**

Determine the magnitude and direction of the resultant force, measured counterclockwise from the positive x axis.

2

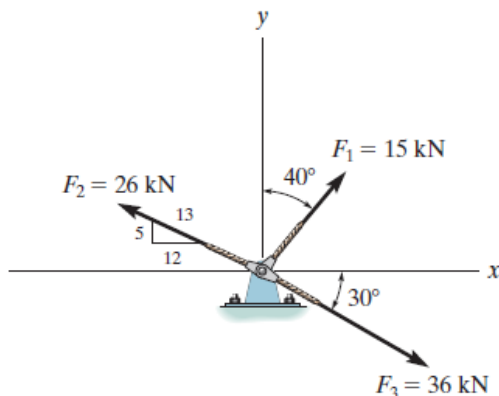
If force $\vec{F}$ is to have a component along the u axis of $F_u = 6\text{ kN}$, determine the magnitude of $\vec{F}$ and the magnitude of its component F_v along the v axis

Hint: $\vec{F} = \vec{F}_u + \vec{F}_v$

3

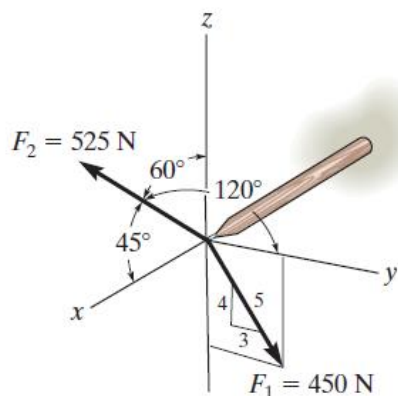
a) The plate is subjected to the two forces at A and B as shown. If $\theta = 60^\circ$, determine the magnitude of the resultant of these two forces and its direction measured clockwise from the horizontal.

b) Determine the angle θ for connecting member A to the plate so that the resultant force of $\vec{F}_A$ and $\vec{F}_B$ is directed horizontally to the right. Also, what is the magnitude of the resultant force?

4

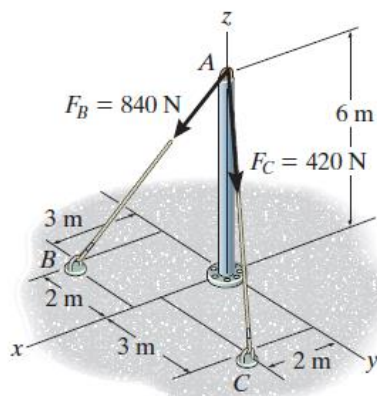
Determine the magnitude of the resultant force and its direction, measured counterclockwise from the positive x axis.

5



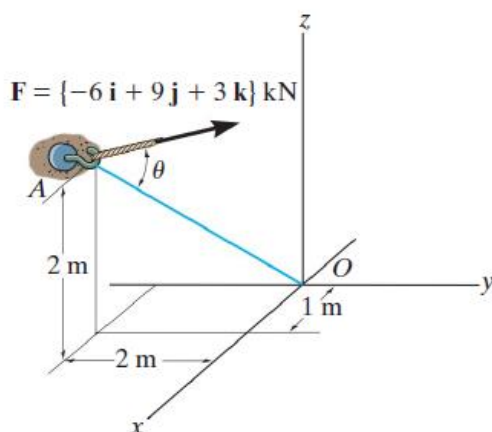
Determine the magnitude and coordinate direction angles of the resultant force, and sketch this vector on the coordinate system.

6



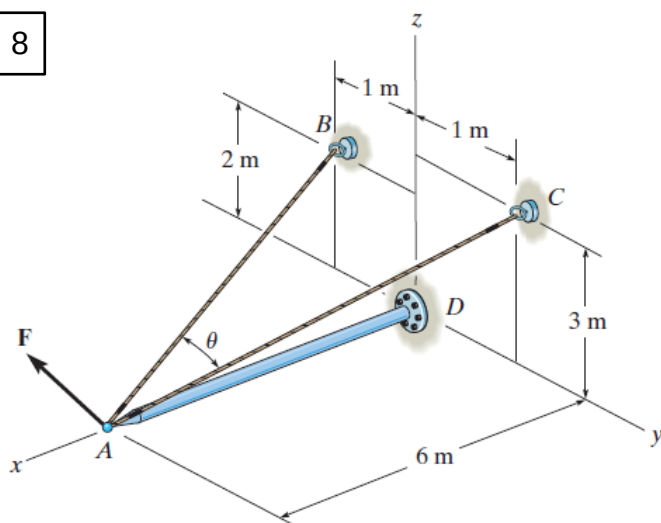
Determine the magnitude of the resultant force at A.

7



Determine the angle θ between the force and the line AO.

8



a) Determine the angle θ between the cables AB and AC.

b) Determine the magnitude of the projected component of the force

$$\vec{F} = \{400\vec{i} - 200\vec{j} + 500\vec{k}\} \text{ N}$$

acting along the cable BA.

c) Determine the magnitude of the projected component of the force

$$\vec{F} = \{400\vec{i} - 200\vec{j} + 500\vec{k}\} \text{ N}$$

acting along the cable CA.