CIV100F – MECHANICS ONLINE

Assignment No. 1

Due: As indicated in Quercus

Material Covered: Textbook – Chapters 1 and 2

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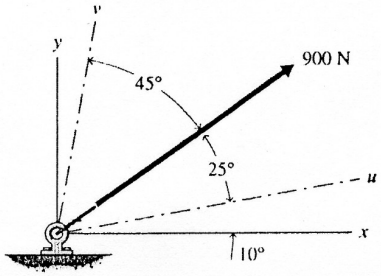
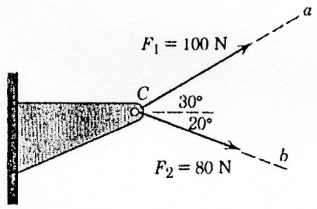
1. Determine the magnitudes of the *u*- and *v*-components of the 900 N force shown in the figure below:



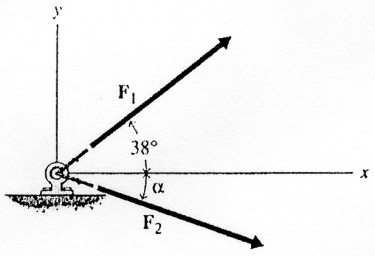
2. Forces $\vec{F}_1$ and $\vec{F}_2$ act on the bracket as shown. Determine the magnitude of the projection F_b of their resultant $\vec{R}$ onto the *b*-axis.



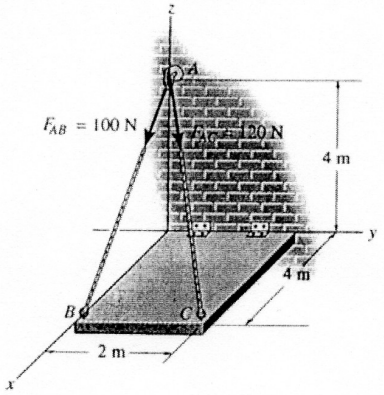
3. Two forces are applied to an eye bracket as shown in the figure below. The resultant $\vec{R}$ of the two forces has a magnitude of 1000 N and its line of action is directed along the *x*-axis. If the force $\vec{F}_1$ has a magnitude of 250 N, determine

(a) The magnitude of force $\vec{F}_2$; and

(b) The angle α between the *x*-axis and the line of action of the force $\vec{F}_2$.



4. The cables exert forces F_{AB} = 100 N and F_{AC} = 120 N on the ring at A as shown. Determine the magnitude of the resultant force acting at A.



5. A block is supported by a system of cables as shown. The weight of the block is 500 N. Determine the tension forces in cables A, B and C.