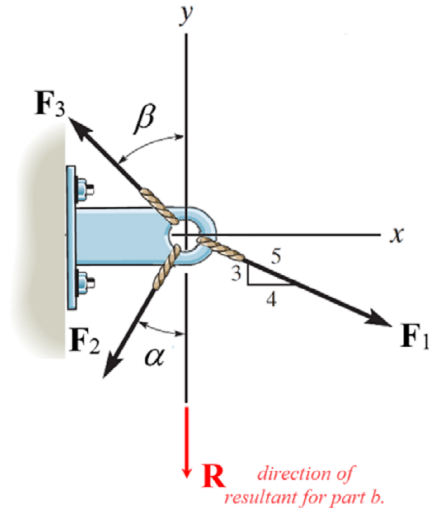


Shown below is a system of three forces acting on a bracket,



- a) Determine the rectangular components (x and y) of the resultant force, its magnitude and direction angle θ , measured counterclockwise from the positive x axis, if

$$F_1 = 650 \text{ N}, F_2 = 650 \text{ N}, F_3 = 825 \text{ N},$$

$$\alpha = 20^\circ \text{ and } \beta = 50^\circ$$

- b) If the resultant force R has a magnitude of 1000 N and is directed along negative y axis, as shown in the figure, determine the rectangular components (x and y) of force F_2 , its magnitude and direction angle measured counterclockwise from the positive x axis. Use the forces F_1 and F_3 that were given in part a.

Instructions: Two submissions are required.

- 1) At the end of the tutorial session, you will hand out a paper copy of your solution to the Teaching Assistant. Make sure that you have a second copy of your solution, so you can complete the final draft. Do not forget to write your names and student numbers in your submission. A student who is absent from the tutorial will not receive any credit for it. A student can join the session remotely (e.g., zoom, WhatsApp, etc.), but you as a team must arrange the communication and let the Teaching Assistant know that a student is working remotely with the team.
- 2) Before the beginning of the next tutorial, this could be anytime during the week, upload a pdf file of your complete solution. Make sure you show all the steps necessary to solve this problem. Upload the pdf file under **Tutorial 1**. Include your names and student numbers. Only one submission per team.