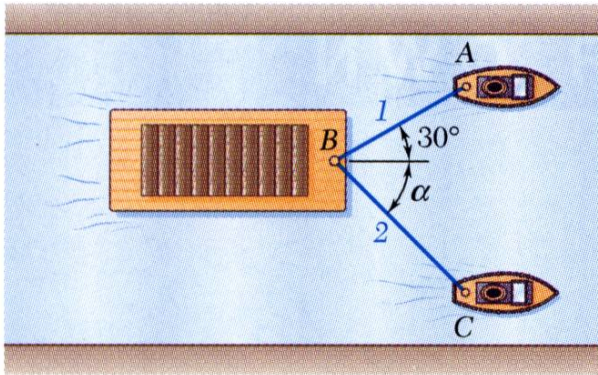


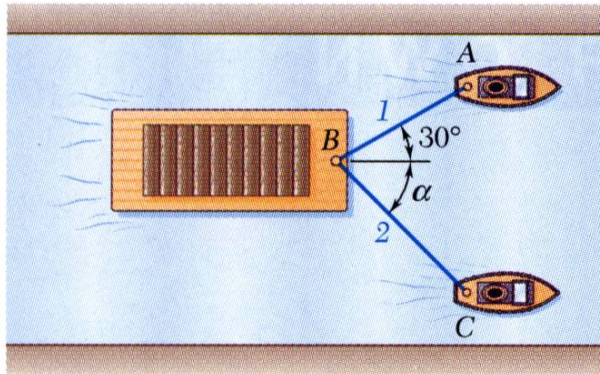
A barge is pulled by two tugboats. If the resultant of the forces exerted by the tugboats is 5000 lb_f directed along the axis of the barge, determine

- the tension in each of the ropes for $\alpha = 45^\circ$, using a graphical and trigonometric solution.
- the value of α for which the tension in rope 2 is a minimum

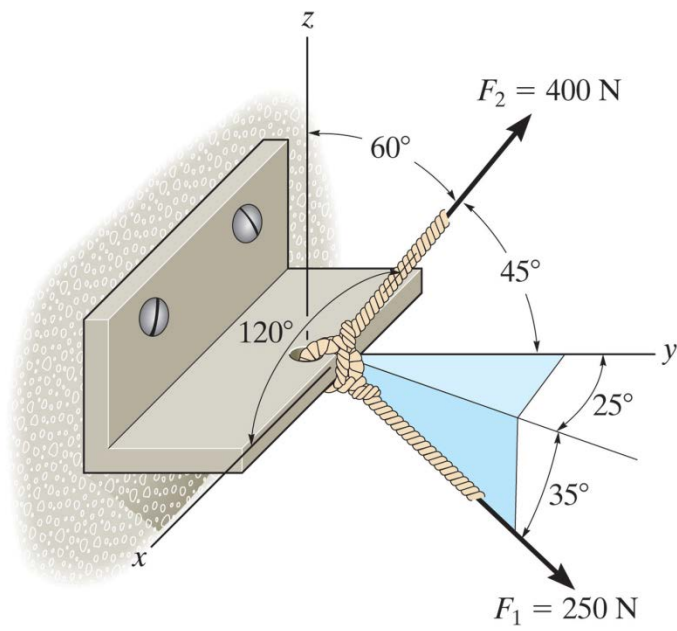


A barge is pulled by two tugboats. If the resultant of the forces exerted by the tugboats is 5000 lb_f directed along the axis of the barge, determine

- c) the tension in each of the ropes for $\alpha = 45^\circ$, using rectangular components.



Find the magnitude and direction of the following system of forces.



Find the magnitude of the projected component of this force acting along line OA.

