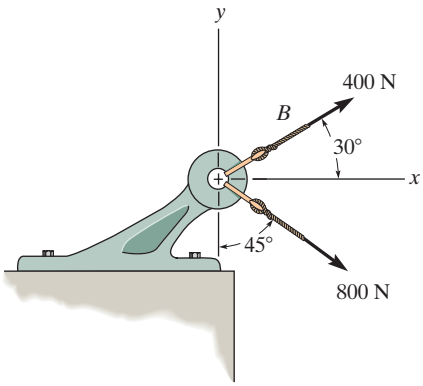
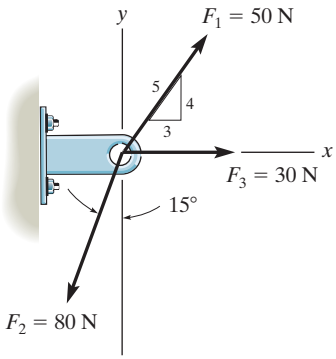
PROBLEMS

*2–32. Determine the magnitude of the resultant force and its direction, measured clockwise from the positive x axis.



Prob. 2–32

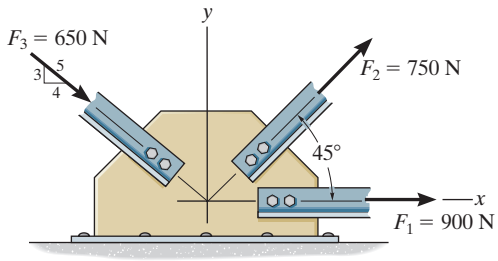
2–33. Express each of the three forces acting on the support in Cartesian vector form and determine the magnitude of the resultant force and its direction, measured clockwise from positive x axis.



Prob. 2–33

2–34. Resolve each force acting on the *gusset plate* into its x and y components, and express each force as a Cartesian vector.

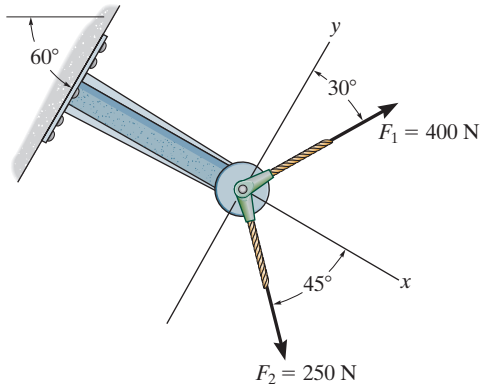
2–35. Determine the magnitude of the resultant force acting on the *gusset plate* and its direction, measured counterclockwise from the positive x axis.



Probs. 2–34/35

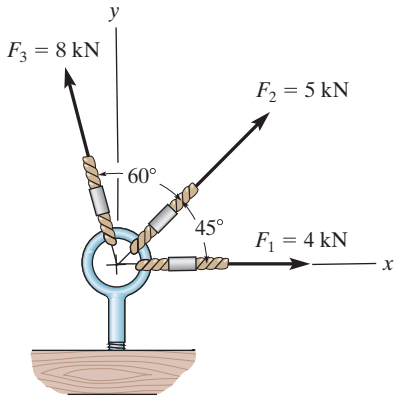
*2–36. Resolve $\mathbf{F}_1$ and $\mathbf{F}_2$ into their x and y components.

2–37. Determine the magnitude of the resultant force and its direction measured counterclockwise from the positive x axis.



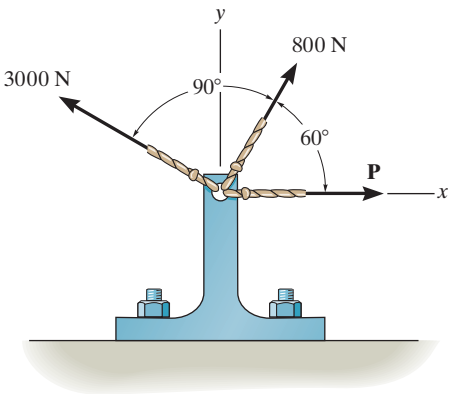
Probs. 2–36/37

2–38. Determine the magnitude of the resultant force and its direction measured counterclockwise from the positive x axis.



Prob. 2–38

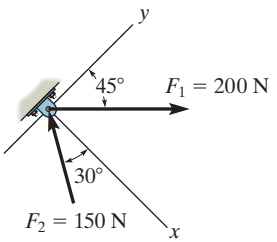
2–39. The three forces are applied to the bracket. Determine the range of values for the magnitude of force **P** so that the resultant of the three forces does not exceed 2400 N.



Prob. 2–39

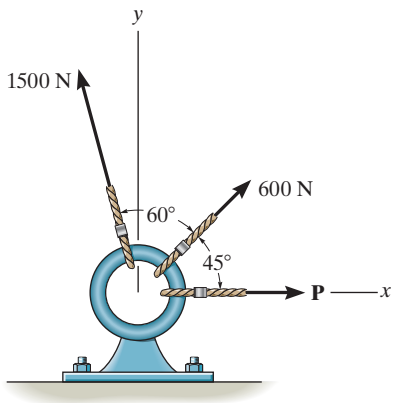
***2–40.** Determine the x and y components of $\mathbf{F}_1$ and $\mathbf{F}_2$.

2–41. Determine the magnitude of the resultant force and its direction measured counterclockwise from the positive x axis.



Probs. 2–40/41

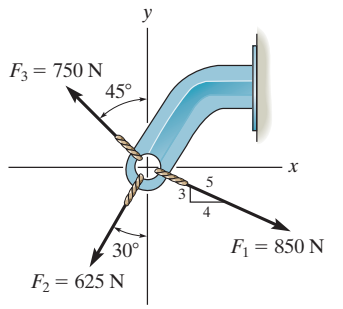
2–42. Three forces act on the ring. Determine the range of values for the magnitude of **P** so that the magnitude of the resultant force does not exceed 2500 N. Force **P** is always directed to the right.



Prob. 2–42

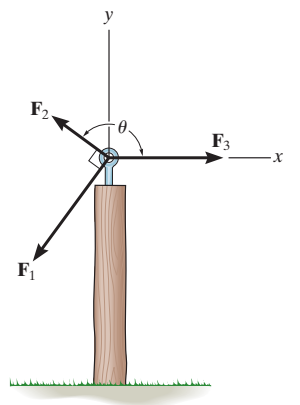
2–43. Express $\mathbf{F}_1$, $\mathbf{F}_2$, and $\mathbf{F}_3$ as Cartesian vectors.

***2–44.** Determine the magnitude of the resultant force and its direction measured counterclockwise from the positive x axis.



Probs. 2–43/44

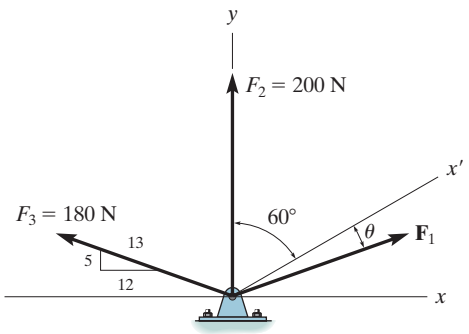
2–45. The three concurrent forces acting on the post produce a zero resultant force $\mathbf{F}_R = \mathbf{0}$. If $F_2 = \frac{1}{2}F_1$, and $\mathbf{F}_1$ is to be 90° from $\mathbf{F}_2$ as shown, determine the required magnitude of F_3 expressed in terms of F_1 and the angle θ.



Prob. 2–45

2–46. Three forces act on the bracket. Determine the magnitude and direction θ of $\mathbf{F}_1$ so that the resultant force is directed along the positive x' axis and has a magnitude of 800 N.

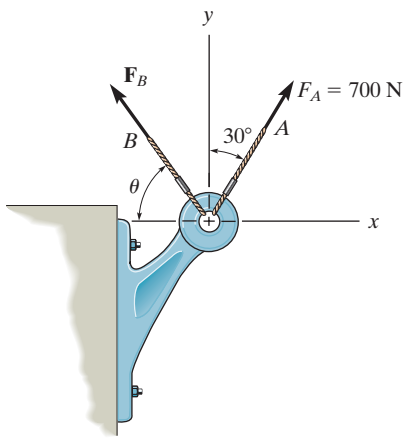
2–47. If $F_1 = 300$ N and $\theta = 10°$, determine the magnitude of the resultant force and its direction measured counterclockwise from the positive x' axis.



Probs. 2–46/47

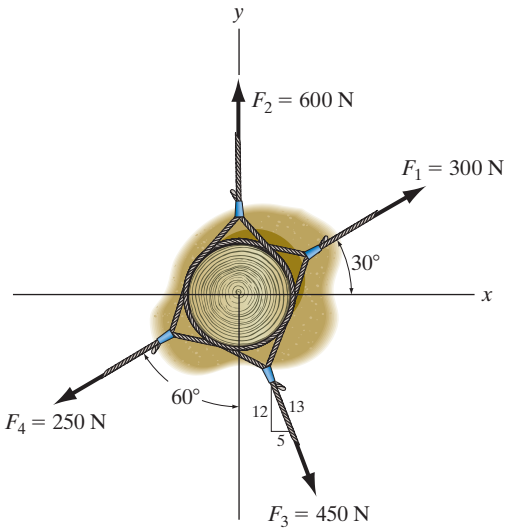
***2–48.** Determine the magnitude and orientation θ of $\mathbf{F}_B$ so that the resultant force is directed along the positive y axis and has a magnitude of 1500 N.

2–49. If $F_B = 600$ N and $\theta = 20°$, determine the magnitude of the resultant force and its direction measured counterclockwise from the positive y axis.



Probs. 2–48/49

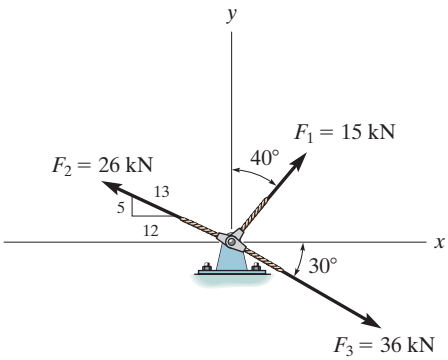
2–50. The four concentric forces act on the post. Determine the resultant force and its direction, measured counterclockwise from the positive x axis.



Prob. 2–50

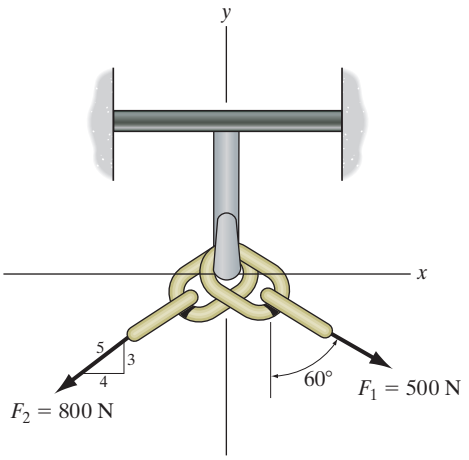
2–51. Express $\mathbf{F}_1$, $\mathbf{F}_2$ and $\mathbf{F}_3$ as Cartesian vectors.

***2–52.** Determine the magnitude of the resultant force and its direction, measured counterclockwise from the positive x axis.



Probs. 2–51/52

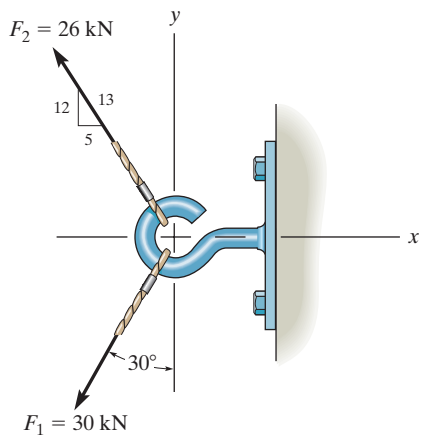
2–53. Determine the resultant force acting on the hook, and its direction measured clockwise from the positive x axis.



Prob. 2–53

2–54. Express $\mathbf{F}_1$ and $\mathbf{F}_2$ as Cartesian vectors.

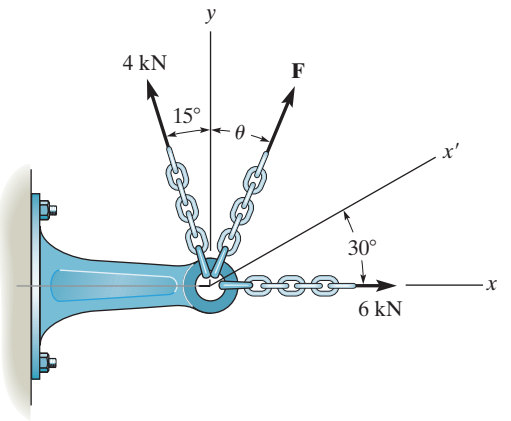
2–55. Determine the magnitude of the resultant force and its direction measured counterclockwise from the positive x axis.



Probs. 2–54/55

***2–56.** Three forces act on the bracket. Determine the magnitude and direction θ of $\mathbf{F}$ so that the resultant force is directed along the positive x' axis and has a magnitude of 8 kN.

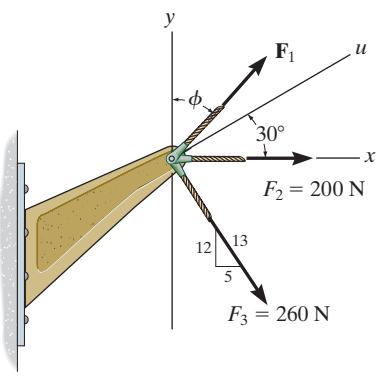
2–57. If $F = 5$ kN and $\theta = 30°$, determine the magnitude of the resultant force and its direction measured counterclockwise from the positive x axis.



Probs. 2–56/57

2–58. If the magnitude of the resultant force acting on the bracket is to be 450 N directed along the positive u axis, determine the magnitude of $\mathbf{F}_1$ and its direction ϕ.

2–59. If the resultant force acting on the bracket is required to be a minimum, determine the magnitudes of $\mathbf{F}_1$ and the resultant force. Set $\phi = 30°$.



Probs. 2–58/59