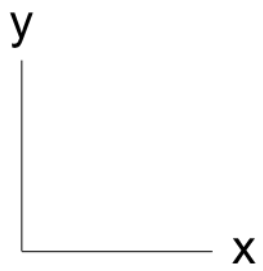
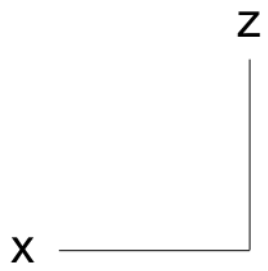
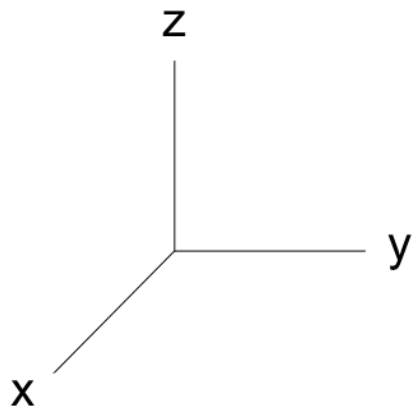
1. Refer to the x-y coordinate system below. Using the right-hand rule, indicate the direction of the positive z-axis.



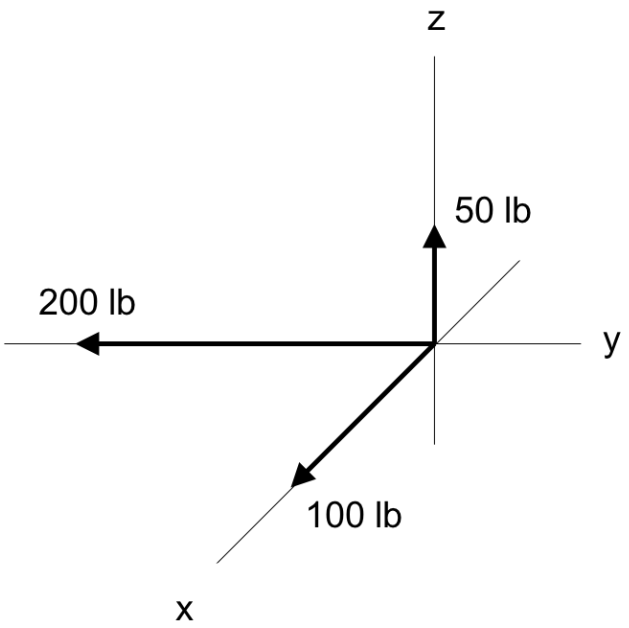
2. Refer to the x-z coordinate system below. Using the right-hand rule, indicate the direction of the positive y-axis.



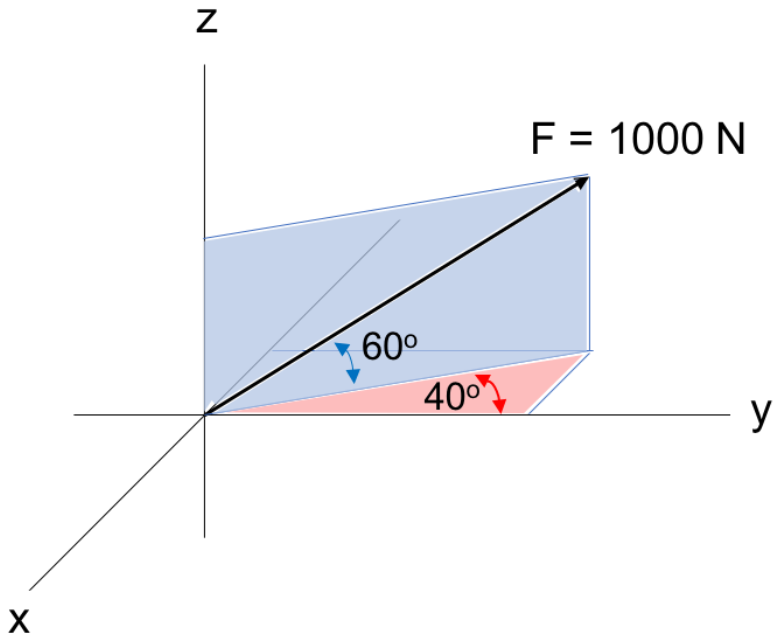
3. Refer to the x-y-z coordinate system below. Draw the positive Cartesian unit vectors that designate the direction of the positive x-y-z axes.



4. The x, y, and z components of force **F** are given in the figure below.
   a. Express **F** as a Cartesian vector
   b. Find the magnitude of **F**
   c. Determine the coordinate direction angles, α, β, and γ, of **F**
   d. Using a straightedge, sketch **F** on the figure. Label α, β, and γ.



5. Refer to the figure below. Determine the x, y, z components of the force **F**. Express the force as a Cartesian vector.



6. Refer to the figure below.
   a. Determine the x, y, z components of the forces $\mathbf{F}_1$ and $\mathbf{F}_2$ and express each force as a Cartesian vector.
   b. Determine the resultant force $\mathbf{F}_R$
   c. Determine the magnitude of $\mathbf{F}_R$
   d. Determine the coordinate direction angles, α, β, and γ, of $\mathbf{F}_R$
   e. Find the unit vector in the direction of $\mathbf{F}_R$
   f. Using a straightedge, sketch $\mathbf{F}_R$ and its unit vector on the figure