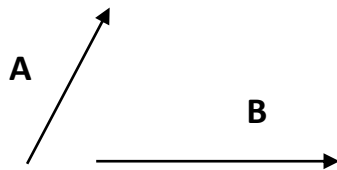
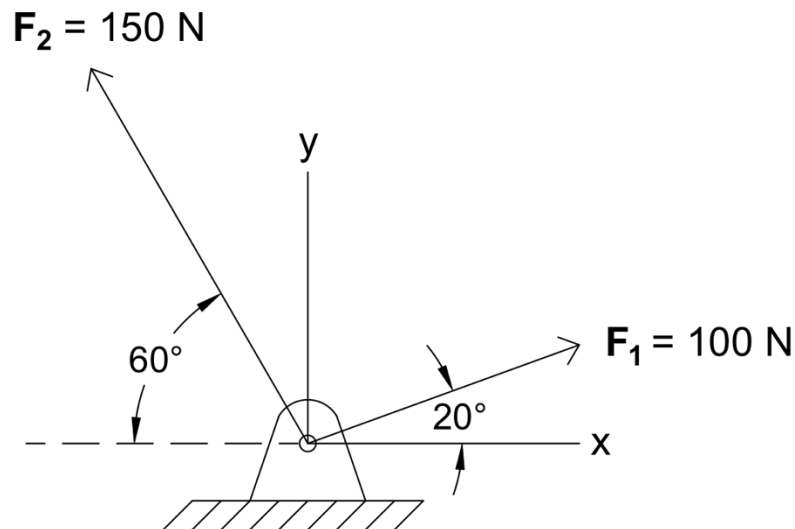


1. In your own words, explain the difference between a scalar and a vector
2. List two scalars and two vectors that are commonly used in statics
3. Determine whether the following quantities are scalars or vectors
 - a. 30 kg
 - b. 4 m
 - c. 30 N down
 - d. 60 s
 - e. A force of 80 lb. applied at 45 degrees
4. Determine if the following operations are possible. If they are not possible, explain why not. If they are possible, give an example.
 - a. Can you add a vector to a scalar?
 - b. Can you multiply a vector by a scalar?
 - c. Can you add a scalar to another scalar?
 - d. Can you add a vector to another vector?
5. Consider vectors **A** and **B** below. Using the triangle rule,
 - a. Graphically add vectors **A** and **B** and label the resultant vector **C**.
 - b. Graphically subtract vector **A** from **B** and label the resultant vector **D**.



6. In your own words, explain what it means to “resolve” a vector.

Refer to the figure below to answer questions 7 - 9. The pin is subjected to forces F_1 and F_2 .



7. Resolve the forces \mathbf{F}_1 and \mathbf{F}_2 into x and y components.
8. Express the forces \mathbf{F}_1 and \mathbf{F}_2 in Cartesian vector notation.
9. Find the resultant force \mathbf{F}_R and express it in Cartesian vector notation. Determine the magnitude and direction of the resultant force.
10. Refer to the picture below. The resultant force \mathbf{F}_R is directed along the positive x axis. Find the magnitudes of \mathbf{F}_2 and \mathbf{F}_R .

