Vector Addition

1. What are the three characteristics of a force?
   A) Point of application, magnitude, and direction

2. A force is characterized by 3 elements. Among these characteristics, which term refers to the quantity of force, a numerical measure of the intensity?
   A) Magnitude

3. What are the terms for forces that intersect at a common point and lie in the same plane?
   A) Coplanar, Concurrent

4. What type of force system is illustrated on the right?
   A) Noncoplanar, Nonconcurrent

5. Which graphical method of vector addition does the diagram below illustrates?
   A) Tip-to-tail method

6. Find the horizontal and vertical components for the 50 LB force shown.
   A) Horizontal = 50 (cos30) = 43.3 LBS
      Vertical = 50 (sin30) = 25 LBS
7. Make a sketch showing the graphic vector addition of the three forces shown below. Show the resultant and approximate its value.

![Graphic Vector Addition](image)

8. Three different forces are represented by graphic vectors. Which illustration depicts the graphic method for their addition?

   A)  
   B)  
   C)  
   D)  

A)  

9. Which equations of statics are necessary and sufficient to solve for the resultant of the concurrent force system shown at right?

   A)  \( \sum F_v = 0 \) and \( \sum F_h = 0 \)

10. Find the resultant in terms of magnitude (KIPS) and direction (degrees) of the forces shown to below.

   A)  
   
   Magnitude = 63 KIPS  
   Direction = 80.6 degrees CCW from +x
11. Find the horizontal and vertical components of the force shown at right.

   A) Horizontal = \( \frac{4 \times 100}{5} = 80 \text{k} \) (right)
   Vertical = \( \frac{3 \times 100}{5} = 60 \text{k} \) (down)

12. Make a sketch showing the graphic addition of the 3 vectors shown below. Draw and label the resultant \( R \).