Tutorial 10

Week of November 19, 2018
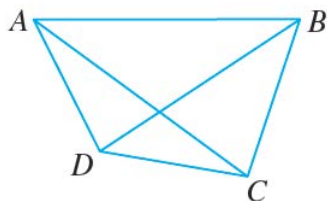
1. Write the following combinations of vectors as a single vector.

   (a) $\overrightarrow{AB} + \overrightarrow{BC}$

   (b) $\overrightarrow{CD} + \overrightarrow{DB}$

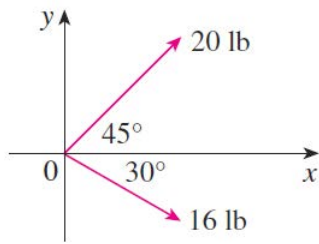   (c) $\overrightarrow{DB} - \overrightarrow{AB}$

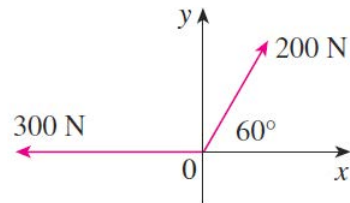   (d) $\overrightarrow{DC} + \overrightarrow{CA} + \overrightarrow{AB}$

2. If $|\mathbf{u}| = |\mathbf{v}| = 1$ and $\mathbf{u} + \mathbf{v} + \mathbf{w} = \mathbf{0}$, find $|\mathbf{w}|$.
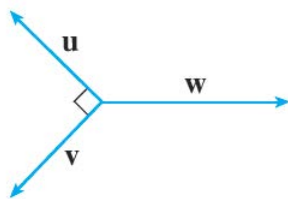
3. Find the magnitude of the resultant force and the angle it makes with the positive x-axis.

(a)

(b)

4. An airplane has an air speed of 300 km/hr and is heading due west. If it encounters a wind blowing south at 50 km/hr, what is the resultant ground velocity of the plane? What is the angle of the resultant ground velocity from the positive x-axis?