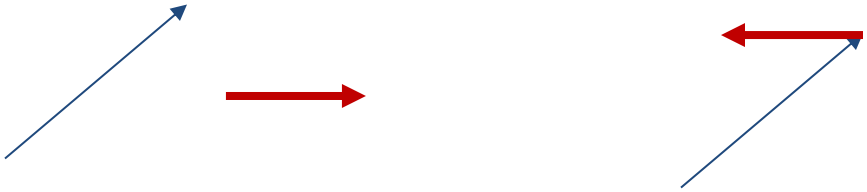
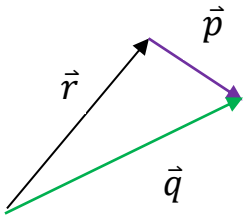
Subtracting Vectors

We can subtract vectors to determine the resultant of two or more vectors. It's really the same as adding the opposite vector (changing the direction of one of the vectors).

Eg. $\vec{u} - \vec{v} = \vec{u} + (-\vec{v})$

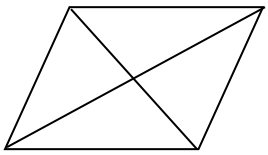


Example 1 Express one vector as a sum/difference of the other two.



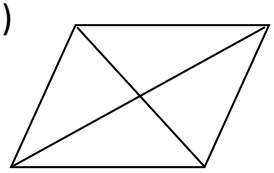
Example 2 Given the following diagram, determine a single vector that is equivalent to each expression. (Pg 55 #6)

a)



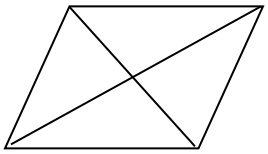
$\overrightarrow{AB} - \overrightarrow{AE} =$

b)



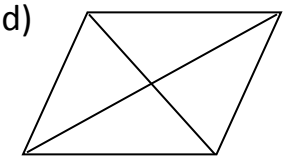
$\overrightarrow{CD} - \overrightarrow{BD} =$

c)



$\overrightarrow{CB} - \overrightarrow{CA} =$

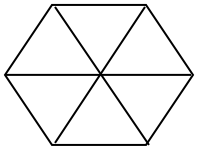
d)



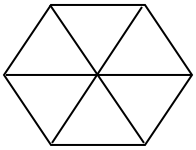
$\overrightarrow{AB} - \overrightarrow{DB} =$

Example 3 Given the regular hexagon UVWXYZ with center O, let OU = $\vec{u}$, OV = $\vec{v}$ and OW = $\vec{w}$. (Pg 56 #8)

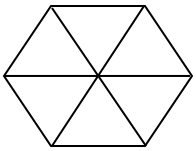
a) Write $\overrightarrow{UV}$ in terms of $\vec{u}$ and $\vec{v}$.



b) Write $\overrightarrow{OW}$ in terms of $\vec{u}$ and $\vec{v}$.



c) Write $\overrightarrow{WO}$ in terms of $\vec{u}$ and $\vec{v}$.



d) Write $\overrightarrow{XY}$ in terms of $\vec{u}$ and $\vec{v}$.