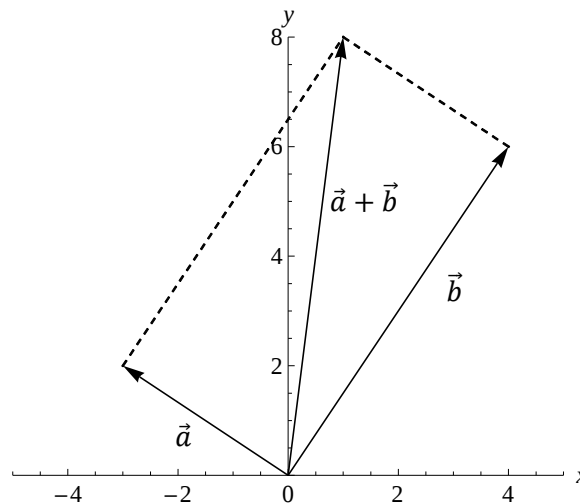


Homework #1

Problem 1. Add the vectors $\vec{a} = \begin{bmatrix} -3 \\ 2 \end{bmatrix}$ and $\vec{b} = \begin{bmatrix} 4 \\ 6 \end{bmatrix}$

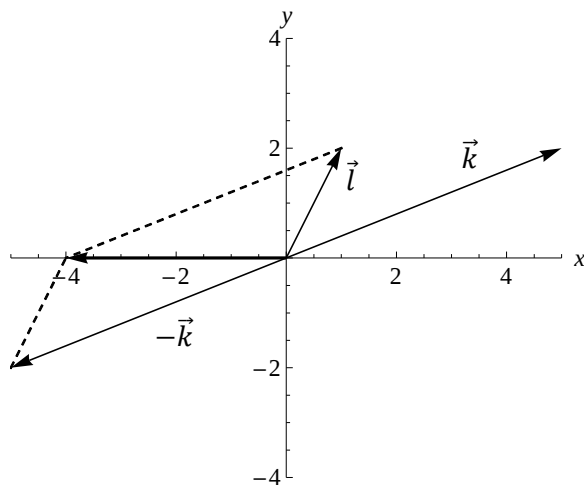


Answer : $\vec{a} + \vec{b} = \begin{bmatrix} 1 \\ 8 \end{bmatrix}$

Problem 2. a) Subtract vector $\vec{k} = \begin{bmatrix} 5 \\ 2 \end{bmatrix}$ from vector $\vec{l} = \begin{bmatrix} 1 \\ 2 \end{bmatrix}$

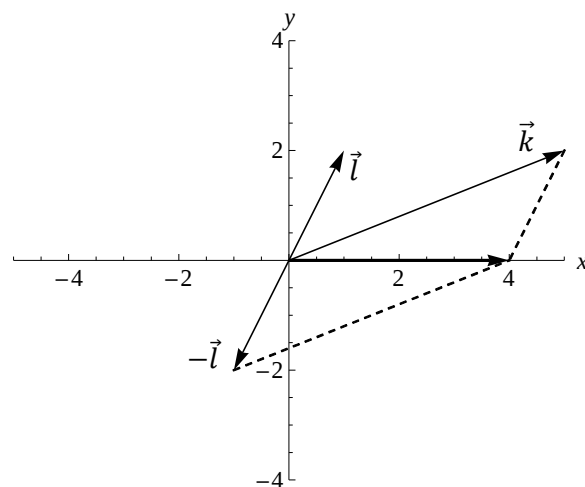
b) Subtract vector $\vec{l} = \begin{bmatrix} 1 \\ 2 \end{bmatrix}$ from vector $\vec{k} = \begin{bmatrix} 5 \\ 2 \end{bmatrix}$

a)



Answer : $\vec{l} - \vec{k} = \begin{bmatrix} -4 \\ 0 \end{bmatrix}$

b)



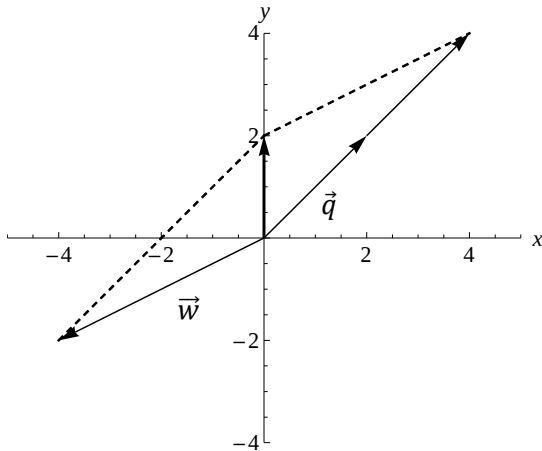
Answer : $\vec{k} - \vec{l} = \begin{bmatrix} 4 \\ 0 \end{bmatrix}$

Problem 3. a) Multiply the vector $\vec{q} = \begin{bmatrix} 2 \\ 2 \end{bmatrix}$ by 2 and add it to vector $\vec{w} = \begin{bmatrix} -4 \\ -2 \end{bmatrix}$

b) Multiply vector $\vec{w}$ by 1.5 and add it to $\vec{q}$.

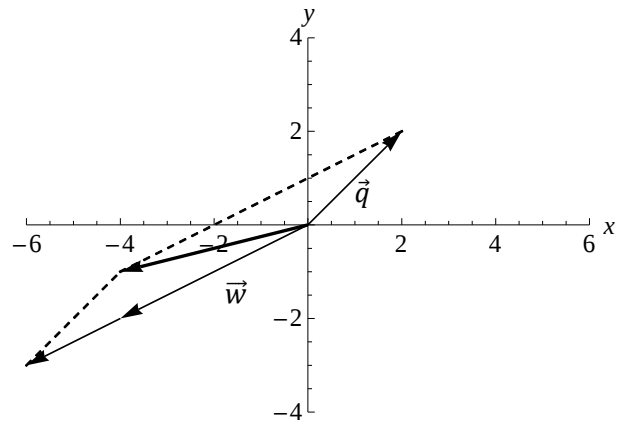
c) Multiply vector $\vec{w}$ by -2 and subtract the vector $\vec{q}$.

a)



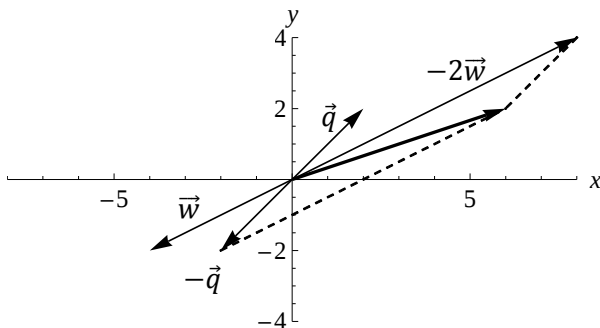
Answer: $2 \begin{bmatrix} 2 \\ 2 \end{bmatrix} + \begin{bmatrix} -4 \\ -2 \end{bmatrix} = \begin{bmatrix} 0 \\ 2 \end{bmatrix}$

b)



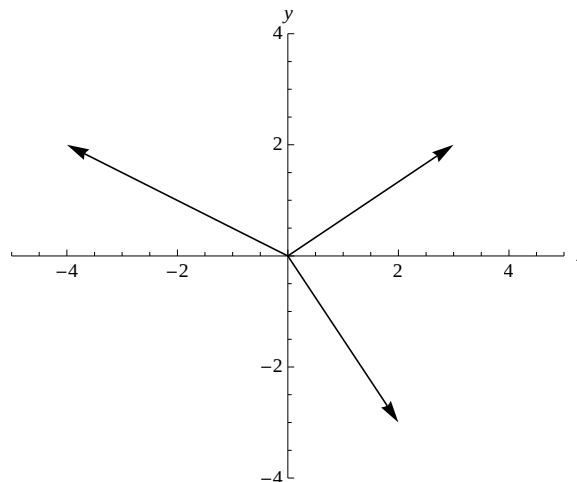
Answer: $1.5 \begin{bmatrix} -4 \\ -2 \end{bmatrix} + \begin{bmatrix} 2 \\ 2 \end{bmatrix} = \begin{bmatrix} -6 \\ -3 \end{bmatrix} + \begin{bmatrix} 2 \\ 2 \end{bmatrix} = \begin{bmatrix} -4 \\ -1 \end{bmatrix}$

c)



Answer: $-2 \begin{bmatrix} -4 \\ -2 \end{bmatrix} - \begin{bmatrix} 2 \\ 2 \end{bmatrix} = \begin{bmatrix} 8 \\ 4 \end{bmatrix} - \begin{bmatrix} 2 \\ 2 \end{bmatrix} = \begin{bmatrix} 6 \\ 2 \end{bmatrix}$

Problem 4. Add all the vectors:



Answer: $\begin{bmatrix} -4 \\ 2 \end{bmatrix} + \begin{bmatrix} 3 \\ 2 \end{bmatrix} + \begin{bmatrix} 2 \\ -3 \end{bmatrix} = \begin{bmatrix} 1 \\ 1 \end{bmatrix}$