the length of $\vec{v}$ and whose direction is the same as that of $\vec{v}$ if $k>0$ and opposite to that of $\vec{v}$ if $k<0$.

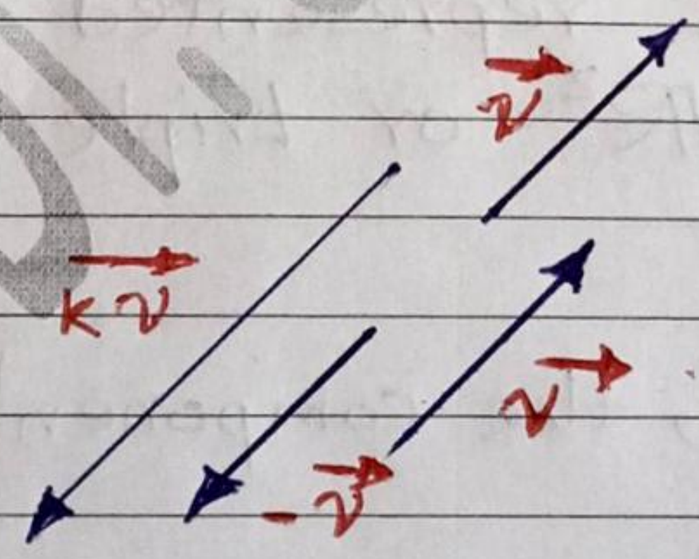
Notes:

1- $k\vec{v}=\vec{0}$ if $k=0$ or $\vec{v}=\vec{0}$

2- If $\vec{v}$ is a vector then $-\vec{v}=(-1)\vec{v}$ is a vector has the same length as that of $\vec{v}$ but the opposite direction. And we call $-\vec{v}$, the negative of $\vec{v}$.

3- $-\vec{0}=(-1)\vec{0}=\vec{0}$

4- If k and $\vec{v}$ are non-zero scalar and non-zero vector respectively, then the vectors $\vec{v}$ and $k\vec{v}$ lie on the same line if their initial points coincide and lie on parallel lines if they do not. Then we say that $\vec{v}$ and $k\vec{v}$ are parallel vectors.



Vectors Subtraction:

vectors subtraction is defined in terms of addition and scalar multiplication