

We can see from the figure that $\vec{u} + \vec{v} = (-1, 7)$
 And $\vec{u} - \vec{v} = (5, -1)$

Scalar multiplication

Let $\vec{u} = (u_1, u_2)$ and let k be a scalar (any real number)
 Then, $k\vec{u}$ is the vector that has the length to be $|k|$ times the length of \vec{u} and

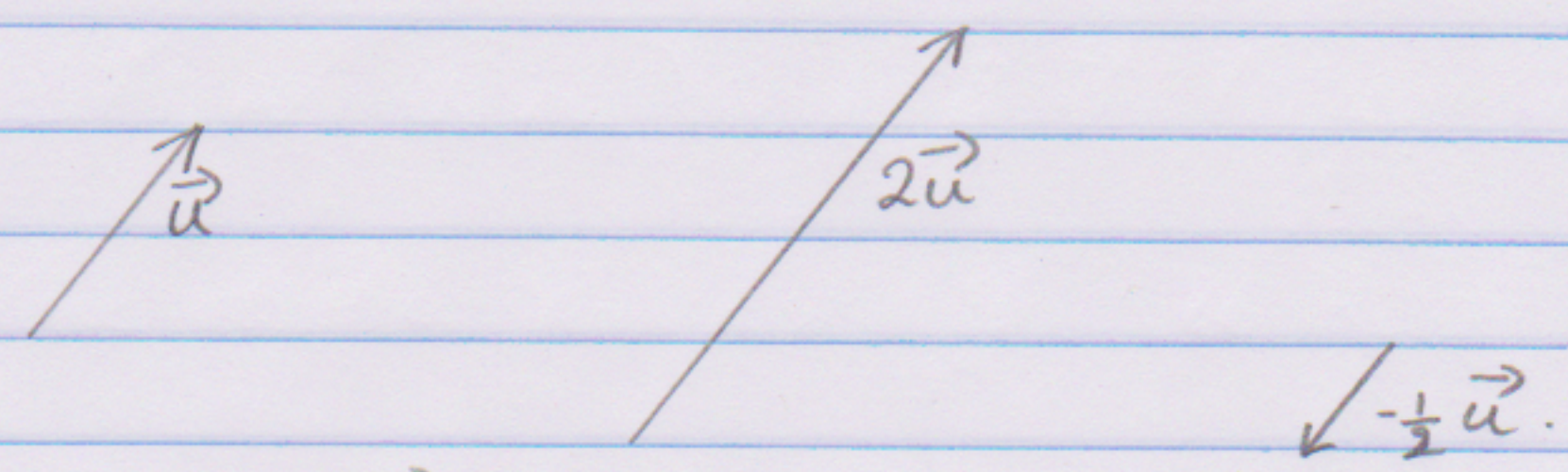
- (1) has the same direction as \vec{u} if $k > 0$
- (2) has the opposite direction of \vec{u} if $k < 0$

If $k = 0$, then $k\vec{u} = \vec{0}$ for any $\vec{u} = (u_1, u_2)$

For example, $\frac{1}{2}\vec{u}$ has the same direction as \vec{u}
 and is half the length of \vec{u}

And $-3\vec{u}$ has opposite direction of \vec{u} and has 3 times the length of \vec{u} .

Example



Note: The zero vector $\vec{0} = (0, 0)$