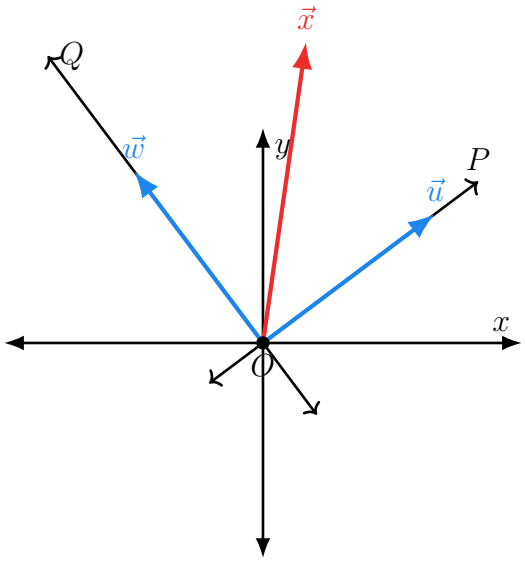
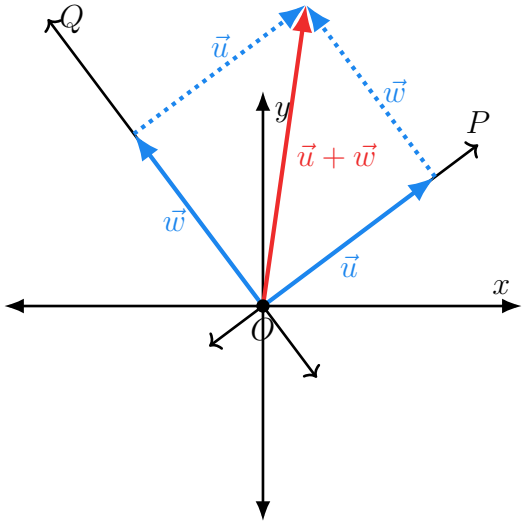
Let P and Q be two perpendicular lines in $\mathbb{R}^2$ and $\vec{x}$ a vector in $\mathbb{R}^2$. $Proj_P(\vec{x}) = \vec{u}$ and $Proj_Q(\vec{x}) = \vec{w}$.



To plot the vector sum $\vec{u} + \vec{w}$, place the vectors head to tail and then draw a vector from the free tail to the free head.



Notice that $\vec{u} + \vec{w} = \vec{x}$. Therefore, $Proj_P(\vec{x}) + Proj_Q(\vec{x}) = \vec{x}$.