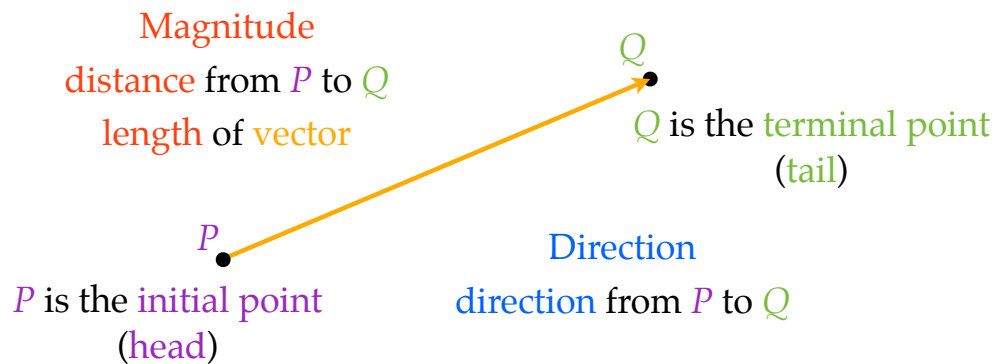


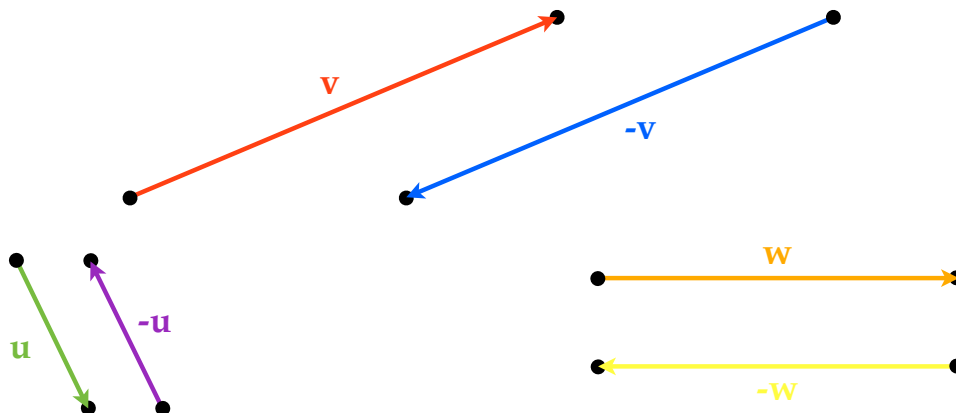
The Negation of a Vector and Subtracting Vectors

Vectors have a starting and ending point

A vector is a quantity with magnitude and direction

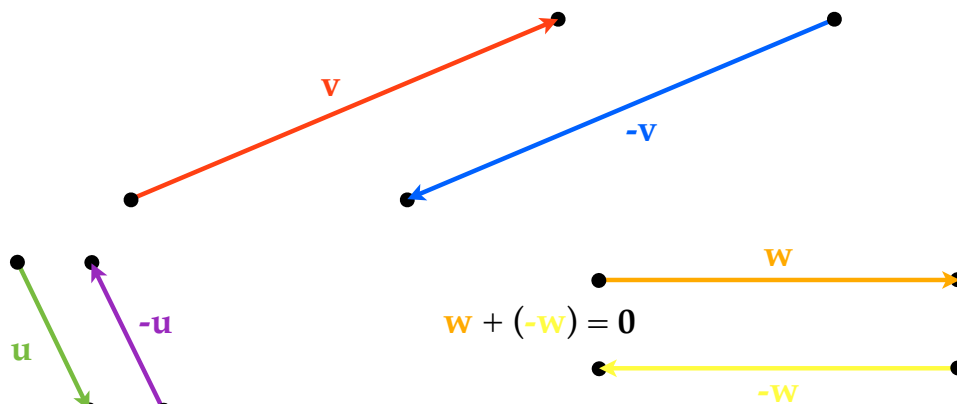


Given $\mathbf{v}$, the negation of $\mathbf{v}$, $-\mathbf{v}$,
is a vector with the same magnitude but in the opposite direction



$$\mathbf{v} + (-\mathbf{v}) = \mathbf{0}$$

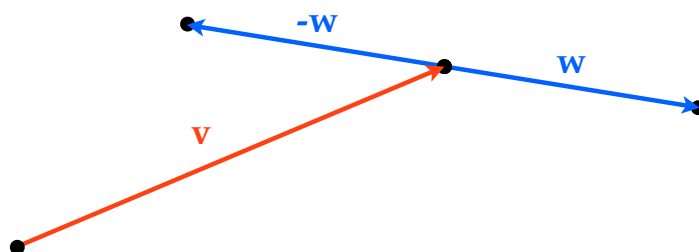
$$\mathbf{u} + (-\mathbf{u}) = \mathbf{0}$$



Subtracting Vectors

To subtract a vector, add the opposite vector

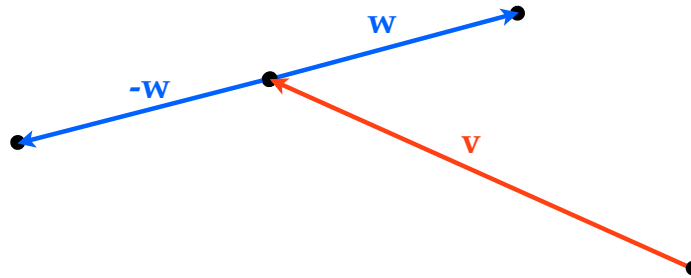
$$\mathbf{v} - \mathbf{w} = \mathbf{v} + (-\mathbf{w})$$



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