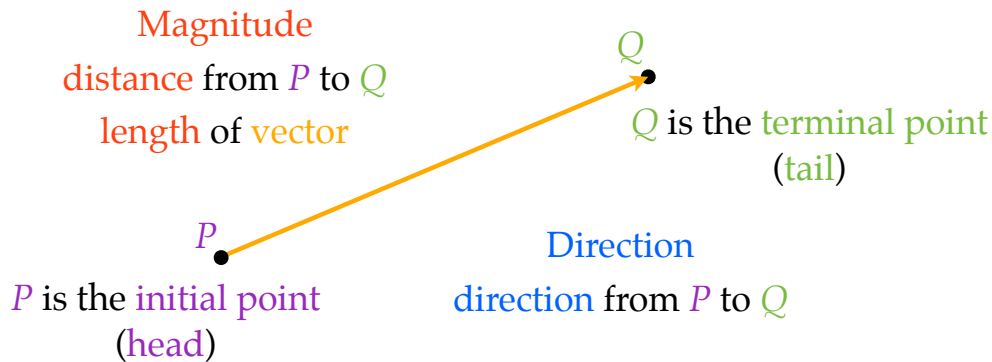


Vectors have a starting and ending point

A vector is a quantity with magnitude and direction



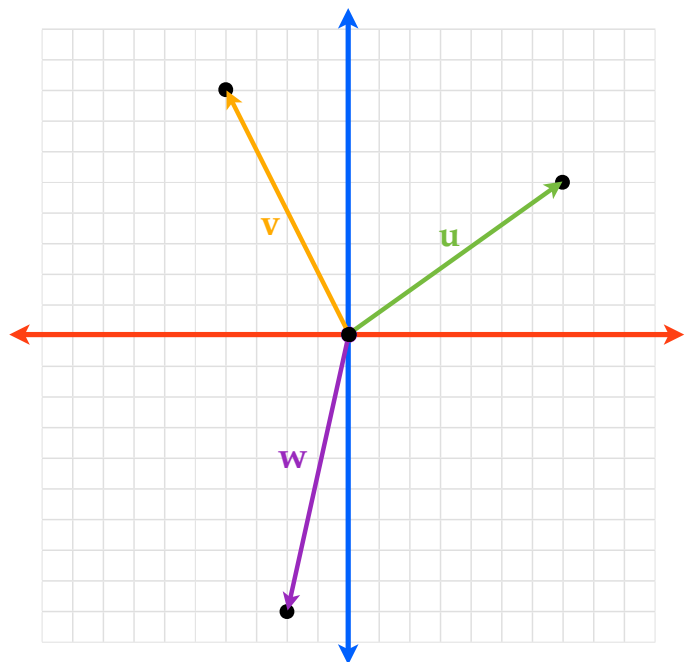
A vector is in standard position if the initial point coincides with the origin of the x - y coordinate plane.

\mathbf{u} is in standard position

\mathbf{v} is in standard position

\mathbf{w} is in standard position

Vectors in standard position are called position vectors.



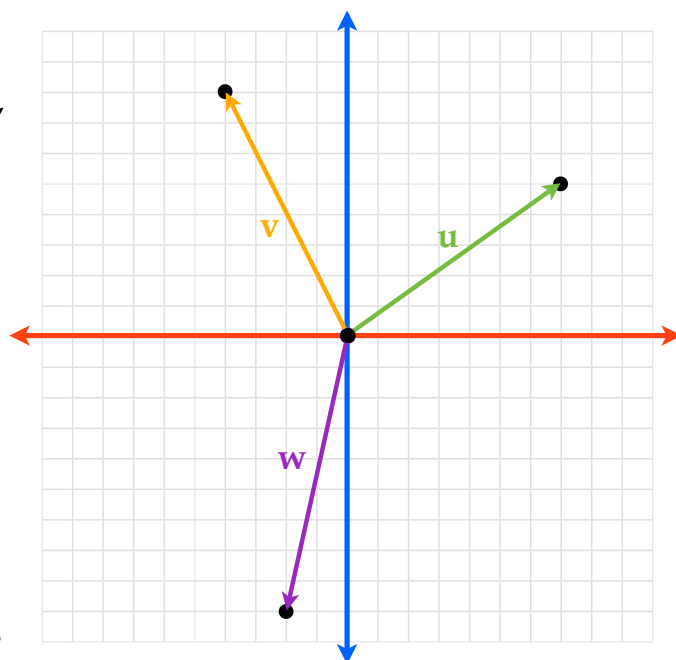
Given a **vector** is in standard position,
the algebraic representation of the vector, $\langle x, y \rangle$,
is the (x, y) of the terminal point.

u is in standard position

v is in standard position

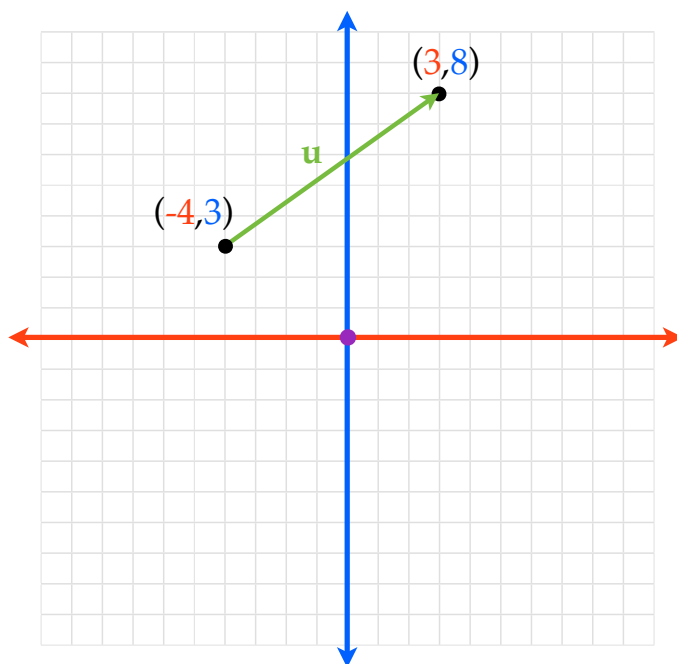
w is in standard position

The x and y values are called the components



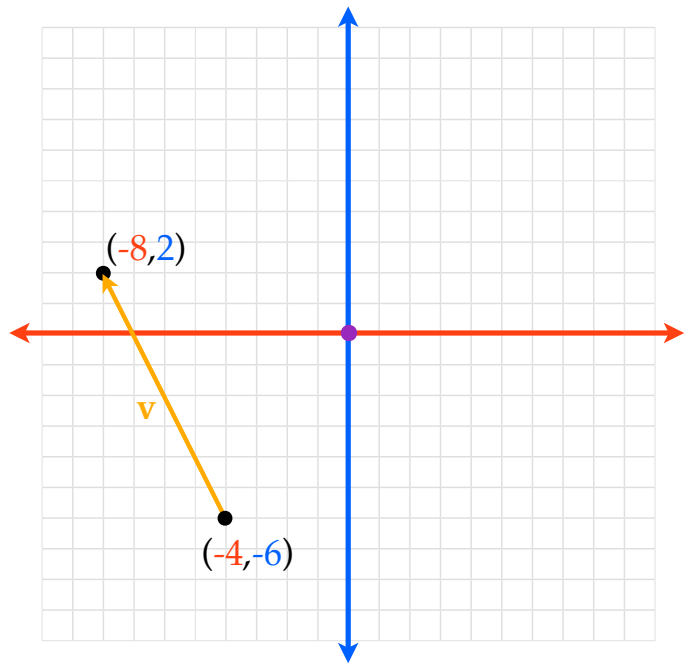
Given **u** is not in standard position,
initial point $P(x_1, y_1)$ and terminal point $Q(x_2, y_2)$, then **u** is equal to **position vector**.

$$\mathbf{u}' = \langle x_2 - x_1, y_2 - y_1 \rangle$$



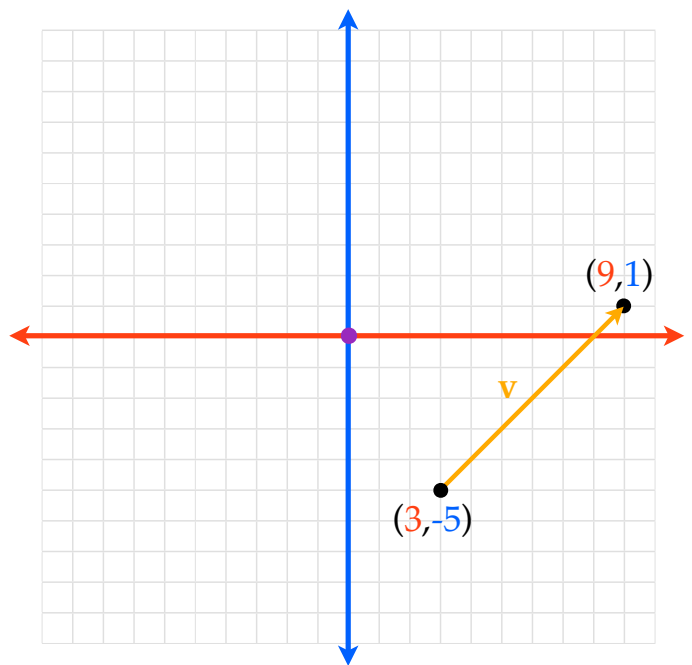
Find the following position vectors

$$\mathbf{v}' = \langle x_2 - x_1, y_2 - y_1 \rangle$$



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