

Operations with Vectors in $a\mathbf{i} + b\mathbf{j}$ Form

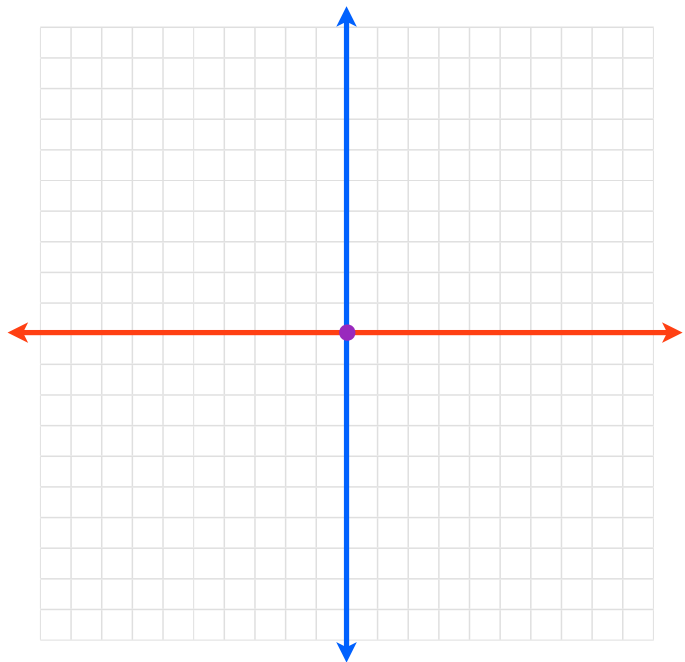
Name _____

Date _____ Period _____

Given scalar α and $\mathbf{v} = a\mathbf{i} + b\mathbf{j}$

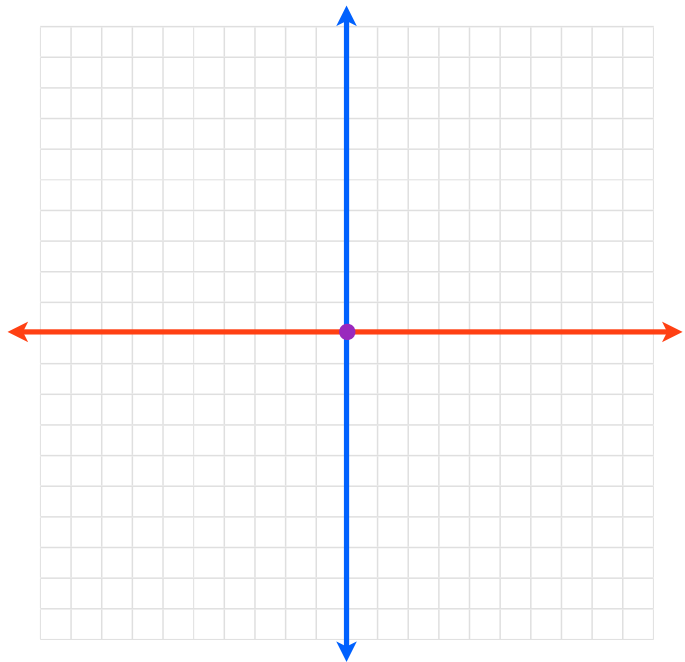
$$\alpha\mathbf{v} = (\alpha a)\mathbf{i} + (\alpha b)\mathbf{j}$$

$$\alpha = 2 \quad \mathbf{v} = 2\mathbf{i} + 3\mathbf{j}$$

Given scalar α and $\mathbf{v} = a\mathbf{i} + b\mathbf{j}$

$$\alpha\mathbf{v} = (\alpha a)\mathbf{i} + (\alpha b)\mathbf{j}$$

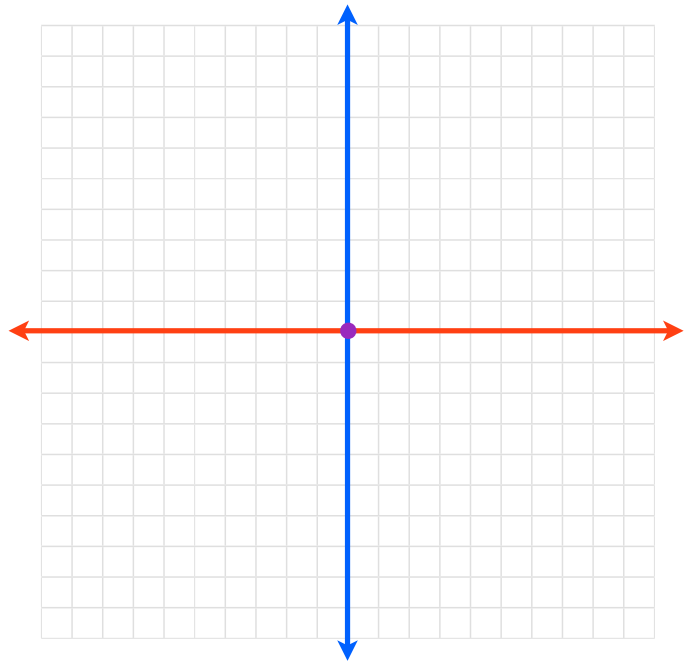
$$\alpha = 3 \quad \mathbf{v} = -2\mathbf{i} - 3\mathbf{j}$$



Given $\mathbf{v} = a_1\mathbf{i} + b_1\mathbf{j}$ and $\mathbf{w} = a_2\mathbf{i} + b_2\mathbf{j}$

$$\mathbf{v} + \mathbf{w} = (a_1 + a_2)\mathbf{i} + (b_1 + b_2)\mathbf{j}$$

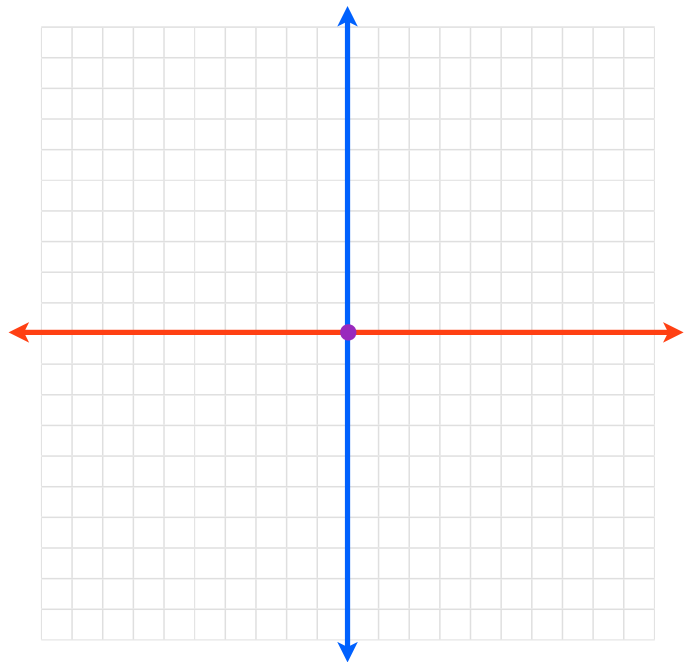
$$\mathbf{v} = 5\mathbf{i} + 3\mathbf{j} \quad \mathbf{w} = \mathbf{i} + 4\mathbf{j}$$



Given $\mathbf{v} = a_1\mathbf{i} + b_1\mathbf{j}$ and $\mathbf{w} = a_2\mathbf{i} + b_2\mathbf{j}$

$$\mathbf{v} + \mathbf{w} = (a_1 + a_2)\mathbf{i} + (b_1 + b_2)\mathbf{j}$$

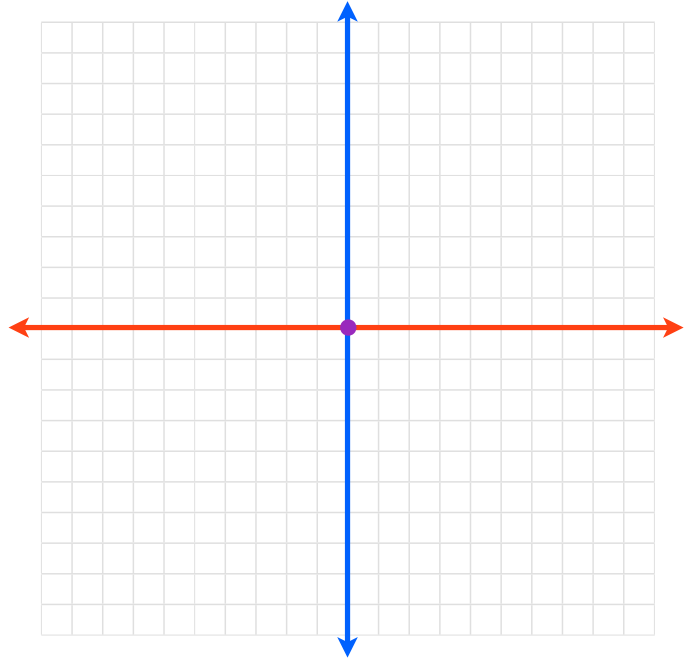
$$\mathbf{v} = 7\mathbf{i} + 2\mathbf{j} \quad \mathbf{w} = -3\mathbf{i} + 3\mathbf{j}$$



Given $\mathbf{v} = a_1\mathbf{i} + b_1\mathbf{j}$ and $\mathbf{w} = a_2\mathbf{i} + b_2\mathbf{j}$

$$\mathbf{v} + \mathbf{w} = (a_1 + a_2)\mathbf{i} + (b_1 + b_2)\mathbf{j}$$

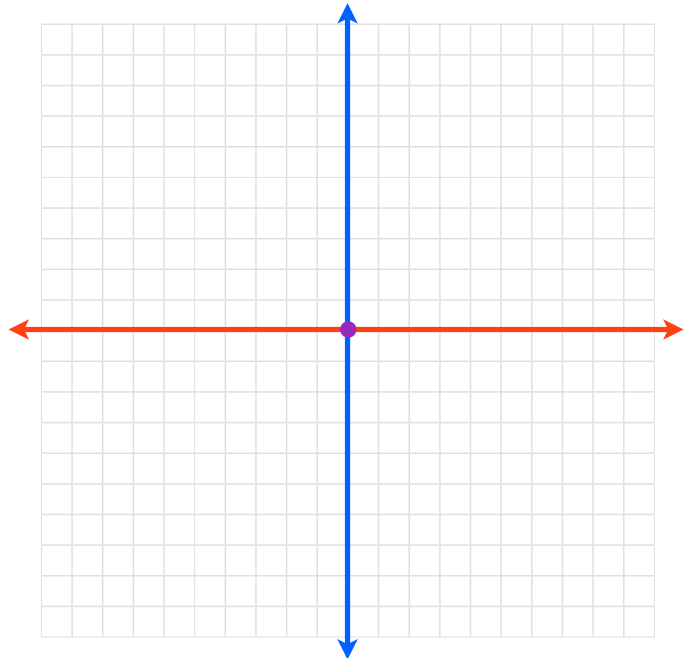
$$\mathbf{v} = 3\mathbf{i} - 8\mathbf{j} \quad \mathbf{w} = -9\mathbf{i} + \mathbf{j}$$



Given $\mathbf{v} = a_1\mathbf{i} + b_1\mathbf{j}$ and $\mathbf{w} = a_2\mathbf{i} + b_2\mathbf{j}$

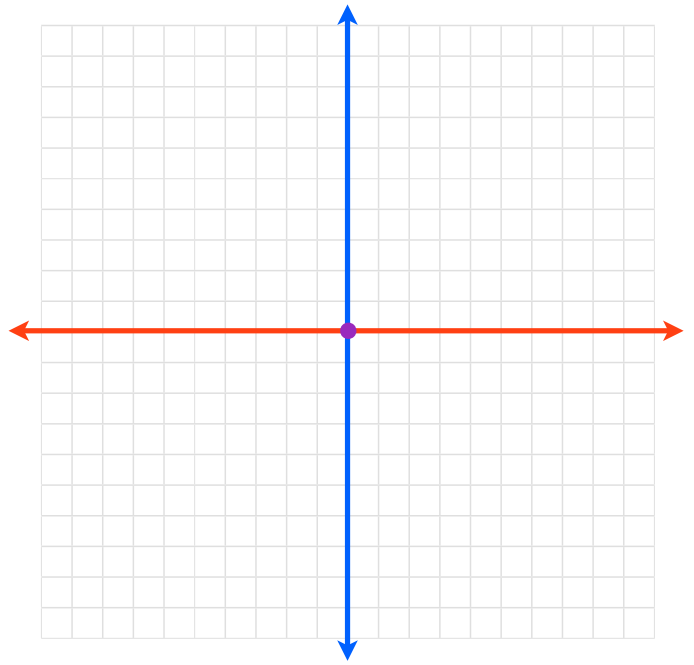
$$\mathbf{v} + \mathbf{w} = (a_1 + a_2)\mathbf{i} + (b_1 + b_2)\mathbf{j}$$

$$\mathbf{v} = 7\mathbf{i} + 2\mathbf{j} \quad \mathbf{w} = -3\mathbf{i} + 3\mathbf{j}$$



Given $\mathbf{v} = 2\mathbf{i} - 5\mathbf{j}$ and $\mathbf{w} = -4\mathbf{i} + 3\mathbf{j}$
find the following.

$$2\mathbf{v} + 2\mathbf{w}$$



Given $\mathbf{v} = 2\mathbf{i} - 5\mathbf{j}$ and $\mathbf{w} = -4\mathbf{i} + 3\mathbf{j}$
find the following.

$$2\mathbf{v} + 2\mathbf{w}$$

$$3\mathbf{v} - 4\mathbf{w} = 3\mathbf{v} + -4\mathbf{w}$$

Given scalar α and $\mathbf{v} = a\mathbf{i} + b\mathbf{j}$

$$\alpha\mathbf{v} = (\alpha a)\mathbf{i} + (\alpha b)\mathbf{j}$$

Given $\mathbf{v} = a_1\mathbf{i} + b_1\mathbf{j}$ and $\mathbf{w} = a_2\mathbf{i} + b_2\mathbf{j}$

$$\mathbf{v} + \mathbf{w} = (a_1 + a_2)\mathbf{i} + (b_1 + b_2)\mathbf{j}$$