Finding the Angle Between Two Vectors

Name _____

Date _____ Period _____

Given $\mathbf{v}$ and $\mathbf{w}$, the angle θ ($0° \le \theta \le 180°$) between $\mathbf{v}$ and $\mathbf{w}$ is determined by

$$\cos\theta = \frac{\mathbf{v} \cdot \mathbf{w}}{\|\mathbf{v}\|\|\mathbf{w}\|}$$

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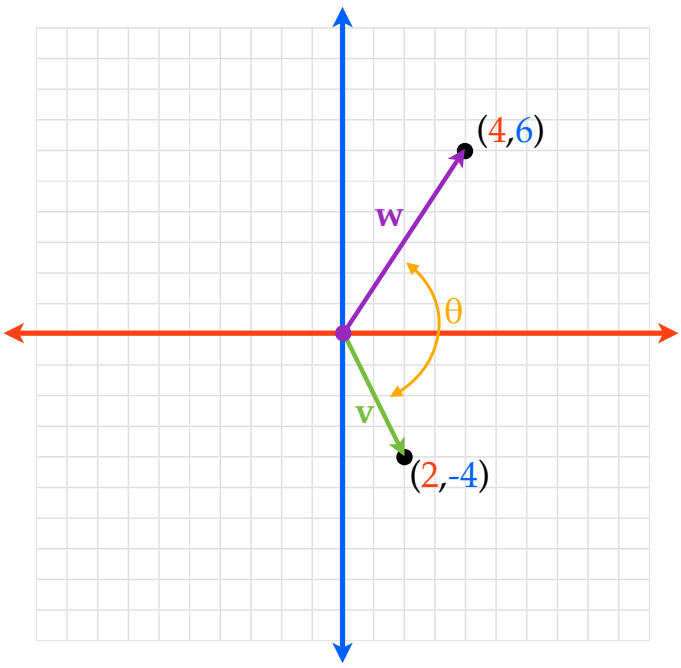
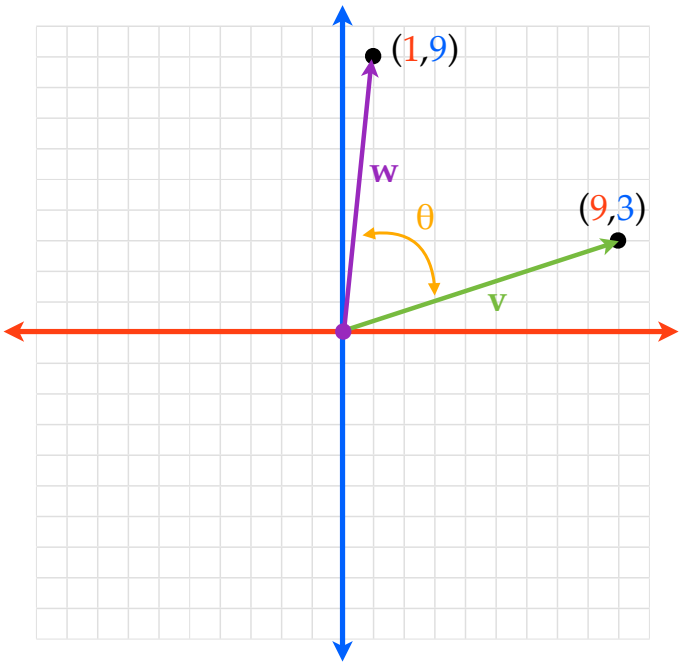
Find the angle between $\mathbf{v}$ and $\mathbf{w}$, given $\mathbf{v} = \langle 2,-4 \rangle$ and $\mathbf{w} = \langle 4,6 \rangle$



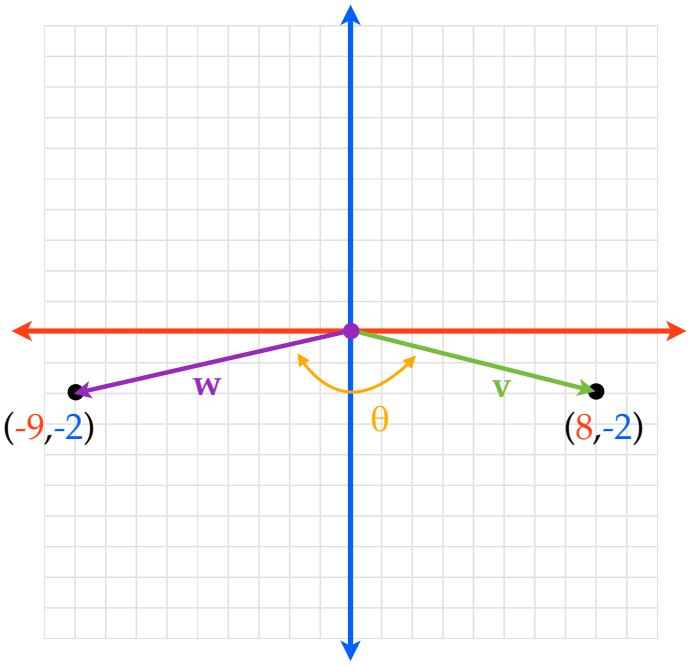
$$\cos\theta = \frac{\mathbf{v} \cdot \mathbf{w}}{\|\mathbf{v}\|\|\mathbf{w}\|}$$

Find the angle between $\mathbf{v}$ and $\mathbf{w}$, given $\mathbf{v} = 9\mathbf{i} + 3\mathbf{j}$ and $\mathbf{w} = \mathbf{i} + 9\mathbf{j}$



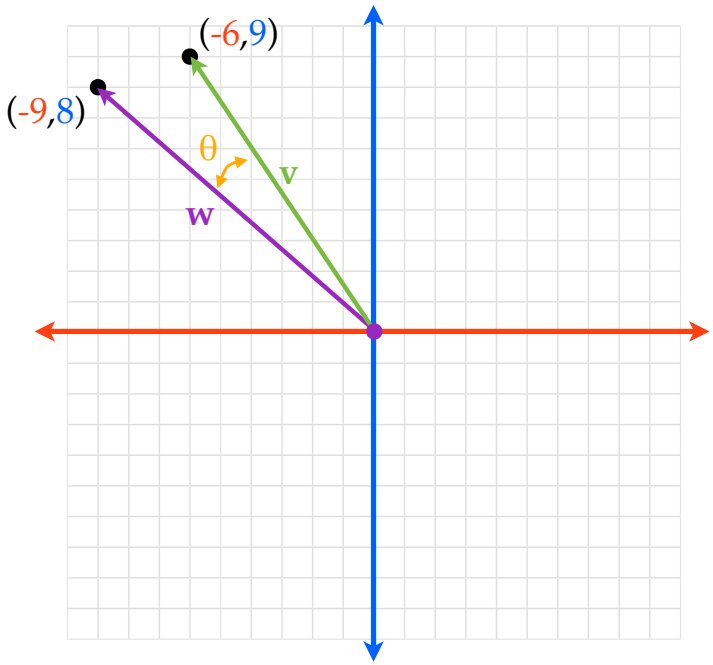
$$\cos\theta = \frac{\mathbf{v} \cdot \mathbf{w}}{\|\mathbf{v}\|\|\mathbf{w}\|}$$

Find the angle between $\mathbf{v}$ and $\mathbf{w}$, given $\mathbf{v} = \langle 8,-2 \rangle$ and $\mathbf{w} = \langle -9,-2 \rangle$



$$\cos\theta = \frac{\mathbf{v}\cdot\mathbf{w}}{\|\mathbf{v}\|\|\mathbf{w}\|}$$

Find the angle between $\mathbf{v}$ and $\mathbf{w}$, given $\mathbf{v} = -6\mathbf{i} + 9\mathbf{j}$ and $\mathbf{w} = -9\mathbf{i} + 8\mathbf{j}$



Given $\mathbf{v}$ and $\mathbf{w}$, the angle θ ($0° \le \theta \le 180°$) between $\mathbf{v}$ and $\mathbf{w}$ is determined by

$$\cos\theta = \frac{\mathbf{v}\cdot\mathbf{w}}{\|\mathbf{v}\|\|\mathbf{w}\|}$$