

Scalar Product (Dot Product)

1. Calculate $\vec{U} \cdot \vec{V}$ given that $\vec{U} = (-4, 1)$ and $\vec{V} = (0, 1)$.

$$\vec{U} \cdot \vec{V} =$$

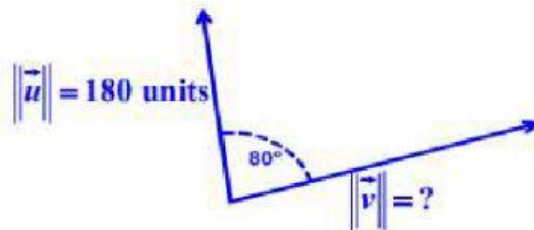
2. Use the scalar product to find the angle between \vec{U} and \vec{V} given that $\vec{U} = (-1, 3)$ and $\vec{V} = (2, 1)$. Round your angle to the nearest whole number.

$$\|\vec{U}\| = \sqrt{\quad}$$

$$\|\vec{V}\| = \sqrt{\quad}$$

$$\theta =$$

3. Given the following diagram, calculate $\|\vec{V}\|$ if $\vec{U} \cdot \vec{V} = 7200$.



$$\|\vec{V}\| =$$

4. Calculate $\vec{U} \cdot \vec{V}$ given that $\|\vec{U}\| = 60 \text{ units}$ and is oriented E 30° N and $\|\vec{V}\| = 50 \text{ units}$ and is oriented N.

Draw a diagram of the situation and find the angle between them

$$\vec{U} \cdot \vec{V} =$$