

### Scalar Product (Dot Product)

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

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

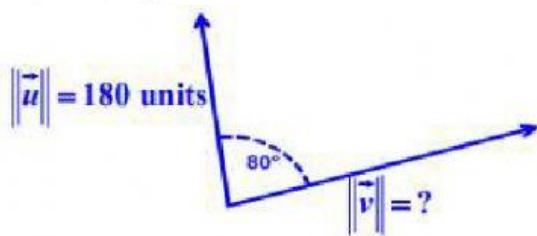
2. Use the scalar product to find the angle between  $\vec{U}$  and  $\vec{V}$  given that  $\vec{U} = (-1, 3)$  and  $\vec{V} = (2, 1)$ . Round your angle to the nearest whole number.

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

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

$$\theta =$$

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  $\|\vec{U}\| = 60$  units and is oriented E 30° N and  $\|\vec{V}\| = 50$  units and is oriented N.

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

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