

Section 9.3 Problems

- Is the dot product of two vectors a scalar or a vector?
 - What can be said about the angle between \vec{a} and \vec{b} if $\vec{a} \cdot \vec{b}$ is negative?
 - Is $\vec{a} \cdot \vec{b} \cdot \vec{c}$ nonsense?
 - If $\vec{v} \perp \vec{a}$ and $\vec{v} \perp \vec{b}$, is it true that $\vec{v} \perp (\vec{a} + \vec{b})$?
- Compute the angle between the vectors.
 - $\vec{u} = \langle 2, 1 \rangle$ and $\vec{v} = \langle 3, 5 \rangle$.
 - $\vec{a} = \langle 1, -4, 7 \rangle$ and $\vec{b} = \langle 1, 0, -1 \rangle$.

- Find all values of b for which the vectors are orthogonal

$$\vec{a} = \langle b, 3, 2 \rangle \quad \vec{c} = \langle 1, b, 1 \rangle$$

- Find two vectors that are not multiples of each other and are both orthogonal to $\langle 2, 0, -3 \rangle$.
- Find and sketch the projection of \vec{u} along \vec{v} .
 - $\vec{u} = \langle 2, 5 \rangle$ and $\vec{v} = \langle 1, 1 \rangle$
 - $\vec{u} = \langle 2, -3 \rangle$ and $\vec{v} = \langle 1, 2 \rangle$
 - $\vec{u} = 5\vec{i} + 7\vec{j} - 4\vec{k}$ and $\vec{v} = \vec{k}$