

Dot Products

Consider the following vectors:

- $\vec{a} = 3\vec{i} - 2\vec{j}$
- $\vec{b} = -2\vec{i} - 2\vec{j}$
- $\vec{c} = \vec{i} + 3\vec{j}$
- $\vec{v} = 3\vec{i} - 2\vec{j} + \vec{k}$

1. Find a vector perpendicular to \vec{a} .
2. Find another vector perpendicular to \vec{a} .
3. Find another vector parallel to \vec{b} .
4. Find another vector parallel to \vec{b} .
5. Find unit vector parallel to \vec{b} .
6. Calculate $\vec{a} \cdot \vec{b}$.
7. What is the angle between \vec{a} and \vec{b} ?
8. What is $\vec{c} \cdot \vec{i}$?
9. What is $\vec{c} \cdot \vec{j}$?
10. In words, what does $\vec{c} \cdot \vec{j}$ mean?
11. Find the equation of a plane that is perpendicular to \vec{v} and which goes through the point $(1, 2, 3)$.