

Problem 1.10

*Perpendicular unit vectors**

Given vector $\mathbf{A} = 3\hat{\mathbf{i}} + 4\hat{\mathbf{j}} - 4\hat{\mathbf{k}}$,

- (a) find a unit vector \mathbf{B} that lies in the x - y plane and is perpendicular to \mathbf{A} .
- (b) find a unit vector $\hat{\mathbf{C}}$ that is perpendicular to both \mathbf{A} and \mathbf{B} .
- (c) Show that \mathbf{A} is perpendicular to the plane defined by $\hat{\mathbf{B}}$ and $\hat{\mathbf{C}}$.