

1. Find a single vector with *all* of the following properties:
 - (a) Magnitude 10
 - (b) Angle of 45° with positive x -axis
 - (c) Angle of 60° with positive y -axis
 - (d) Positive $\hat{\mathbf{k}}$ -component
2. Find the angle between the diagonal of a cube (connecting opposite corners) and the diagonal of one of its faces (connecting opposite corners of one square face).