Physics 3210, Spring 2019 Discussion #1

1. Given the two vectors

$$\begin{aligned} \vec{A} &= 2\hat{x} + 3\hat{y} - 4\hat{z} \\ \vec{B} &= -6\hat{x} - 4\hat{y} + 1\hat{z} \end{aligned}$$

Find the angle between $\vec{A} \times \vec{B}$ and the vector

$$\vec{C} = \hat{x} - \hat{y} + \hat{z}$$

Also find the magnitude of $\vec{A} \times \vec{B}$ along the direction of $\vec{C}$

2. Find a vector perpendicular to the plane

$$2x - 3y + z = 0$$

Express this vector in Cartesian, cylindrical, and spherical coordinates.