Math 201-163 Quiz 3 (A)

Name:.....ID#:.....Sec:.....Ser:.....

Q.1: Let $\overrightarrow{u} = \hat{i} - 2\hat{j} - 3\hat{k}$ and $\overrightarrow{v} = 3\hat{i} + \hat{j} - 2\hat{k}$. Find cosine of the angle between $\overrightarrow{u}$ and $\overrightarrow{v}$. Also find vector projection of $\overrightarrow{v}$ onto $\overrightarrow{u}$.

Q.2: Find area of the triangle with vertices $A(2, 1, -3)$, $B(1, -1, 0)$, $C(3, 2, -1)$. Also find a unit vector perpendicular to the plane containing these points.

Q.3: Find volume of the parallelepiped determined by $\overrightarrow{u} = \hat{i} - 2\hat{j} - 3\hat{k}$, $\overrightarrow{v} = 3\hat{i} + \hat{j} - 2\hat{k}$, and $\overrightarrow{w} = 2\hat{i} - \hat{j} + \hat{k}$. Write if these vectors are co–planer or not?