Q.No.	DAY - 37
214	**Example 6.6 (Apollonius's theorem)** If D is the midpoint of the side BC of a triangle ABC, show by vector method that $\|\overrightarrow{AB}\|^2 + \|\overrightarrow{AC}\|^2 = 2(\|\overrightarrow{AD}\|^2 + \|\overrightarrow{BD}\|^2)$.
215	**Example 6.7** Prove by vector method that the perpendiculars (attitudes) from the vertices to the opposite sides of a triangle are concurrent.
216	**Example 6.8** In triangle ABC, the points D, E, F are the midpoints of the sides BC, CA, and AB respectively. Using vector method, show that the area of ΔDEF is equal to $\frac{1}{4}$ (area of ΔABC).
217	**Example 6.10** A particle is acted upon by the forces $3\hat{i} - 2\hat{j} + 2\hat{k}$ and $2\hat{i} + \hat{j} - \hat{k}$ is displaced from the point $(1, 3, -1)$ to the point $(4, -1, \lambda)$. If the work done by the forces is 16 units, find the value of λ.
218	**Example 6.11** Find the magnitude and the direction cosines of the torque about the point $(2, 0, -1)$ of a force $2\hat{i} + \hat{j} - \hat{k}$, whose line of action passes through the origin.