1. Unit vector along $\overrightarrow{PQ}$, where coordinates of P and Q respectively are (2, 1, -1) and (4, 4, -7) is

   (A) $2\hat{i} + 3\hat{j} - 6\hat{k}$ (B) $-2\hat{i} - 3\hat{j} + 6\hat{k}$

   (C) $\frac{-2\hat{i}}{7} - \frac{3\hat{j}}{7} + \frac{6\hat{k}}{7}$ (D) $\frac{2\hat{i}}{7} + \frac{3\hat{j}}{7} - \frac{6\hat{k}}{7}$

2. If in $\triangle$ABC, $\overrightarrow{BA} = 2\vec{a}$ and $\overrightarrow{BC} = 3\vec{b}$, then $\overrightarrow{AC}$ is

   (A) $2\vec{a} + 3\vec{b}$ (B) $2\vec{a}$ - $3\vec{b}$

   (C) $3\vec{b}$ - $2\vec{a}$ (D) -$2\vec{a}$ - $3\vec{b}$

3. Equation of line passing through origin and making $30°$, $60°$ and $90°$ with $x, y, z$ axes respectively is

   (A) $\frac{2x}{\sqrt{3}} = \frac{y}{2} = \frac{z}{0}$ (B) $\frac{2x}{\sqrt{3}} = \frac{2y}{1} = \frac{z}{0}$

   (C) $2x = \frac{2y}{\sqrt{3}} = \frac{z}{1}$ (D) $\frac{2x}{\sqrt{3}} = \frac{2y}{1} = \frac{z}{1}$

4. If $\vec{a}, \vec{b}, \vec{c}$ are three non-zero unequal vectors such that $\vec{a}.\ \vec{b}= \vec{a}.\ \vec{c}$, then find the angle between $\vec{a}$ and $\vec{b}$ - $\vec{c}$.

5. If the equation of a line is $x = ay + b$, $z = cy + d$, then find the direction ratios of the line and a point on the line.

6. Using Integration, find the area of triangle whose vertices are (-1, 1), (0, 5) and (3, 2).