SAINIK SCHOOL GOPALGANJ

ASSIGNMENT ON CHAPTER-10 (VECTOR ALGEBRA)

CLASS – XII

1. If $\left|\vec{a}+\vec{b}\right| = \left|\vec{a}-\vec{b}\right|$, then find the angle between $\vec{a}$ and $\vec{b}$ is $(\vec{a} \neq 0, \vec{b} \neq 0)$.

2. If $\vec{a}+\vec{b} = \vec{c}$ and $\left|\vec{a}\right| = 4, \left|\vec{b}\right| = 6, \left|\vec{c}\right| = 8$, then find the angle between $\vec{a}$ and $\vec{b}$.

3. If the position vector of vertices A, B, C of Δ ABC are $\hat{i}+\hat{j}+\hat{k}, 4\hat{i}+5\hat{j}+\hat{k}, 5\hat{i}-2\hat{j}+\hat{k}$. Then find the area of Δ ABC

4. If θ is the angle between $\hat{i}+\hat{j}+\hat{k}$ and $2\hat{i}-\hat{j}+2\hat{k}$, then find the value of $\sin\theta$.

5. Let $\vec{a}$= i + 4j +2k, $\vec{b}$ = 3i -2j +7k and $\vec{c}$ = 2i – j + 4k . Find a vector $\vec{d}$ perpendicular To both $\vec{a}$ and $\vec{b}$ and $\vec{c}\cdot\vec{d} = 15$.

6. Find the position vector of point R which devides the line joining two pints P and Q with position vectors $2\vec{a}$ + $\vec{b}$ and $\vec{a}$ - $3\vec{b}$ externally in ratio 1 : 2 .

7. Two adjacent sides of a parallelogram are 3i -2j +7k and 2i – j + 4k, find the unit vector parallel to its diagonal. Also find its area.

8. If $|\vec{a}|$=10, $|\vec{b}|$=2 and$\vec{a}\cdot\vec{b}$ =12, then find the value of $|\vec{a}\times\vec{b}|$

9. If $\vec{a}, \vec{b}, \vec{c}$ are unit vectors such that $\vec{a}$ +$\vec{b}$ +$\vec{c}$ =0, find the value of $\vec{a}\cdot\vec{b}$ +$\vec{b}\cdot\vec{c}$ +$\vec{c}\cdot\vec{a}$.

10. The vectors from origin O to the points A and B are $\vec{a}$ =2i-3j+2k and $\vec{b}$ =2i+3j+k respectively, then what is the area of ΔOAB ?