INDIAN SCHOOL NIZWA - WORKSHEET

MATHEMATICS
CH-10- VECTORS

Name: _____ Date:_____ Class: XII Sec: ___

1.The scalar product of the vectors $i + j + k$ with a unit vector along the sum of the vectors $2i + 4j - 5k$ and $\lambda i + 2j + 3k$ is equal to 1. Find the value of λ.

2.If **a**, **b**, **c** are three vectors such that **a**x**b** = **c**, **b**x**c** = **a**, prove that **a**, **b**, **c** are mutually perpendicular with I**b**I=1 and I**a**I=I**c**I.

3.The magnitude of the vector product of the vector $i + j + k$ with a unit vector along the sum of the vector $2i+4j-5k$ and $\lambda i+2j+3k$ is equal to $\sqrt{2}$. Find the value of λ.

4.Let **a** = i+4j+2k, **b** = 3i-2j+7k and **c** = 2i-j+4k. Find a vector d which is perpendicular to both **a** and **b** and **c**.**d** = 15.

5.If **a**≠0, **a.b** = **a.c** and **a**x**b** = **a**x**c**, then show that **b** = **c**.

6.Find λ when the projection of **a** = λi+j+4k on **b** = 2i+6j+3k is 4 units.

7.If **a**x**b** = **c**x**d** and **a**x**c** = **b**x**d**, show that **a-d** is parallel to **b-c** where **a**≠**d** and **b** ≠**c**.

8.Find the direction cosines of the line which is perpendicular to the lines with direction cosines proportional to 1, -2, 2 and 0, 2, -1.

9.If axb = cx d and axc = bxd, then show that (a-d) is parallel to (b-c), it is being given that a ≠d and b ≠ c.

10.If a, b, c are three vectors such that a.b = a.c and axb = axc, given a ≠ 0, then show that b = c.

11.If a+b+c = 0 and |a|= 3, |b|=5and |c|=7, then show that the angle between a and b is 60°

12.If a+b, b+c and c+a are coplanar, then show that the vectors a, b , c are coplanar.