MOTION IN A PLANE

1. Show that the range of projection of a projectile for two angles of a projection α andβ is same where α +β = 90^0

2. A projectile is thrown at an angle of 60^0 with the horizontal. After how much time will its inclination with the horizontal be 45^0

3. Two equal forces have their resultant equal to either. What is the inclination between them ?

4. Prove the following statement " For Elevations which exceed or fall short of 45^0 by equal amounts, the ranges are equal "

5. Establish a relation between linear velocity and angular velocity in a uniform circular motion and explain the direction of linear velocity

6. State paral lalogram law of vector addition. Show that resulatant of two vectors A and B inclined at an angle θ is R
$$=\sqrt{A^2 + B^2 + 2ABcos\theta}$$

7. Show that a . (bxc) is equal in magnitude to the volume of a parallelepiped formed by the three vectors a, b , c

8. Are the magnitude and direction of (A –B) same as that of (B –A)

9. What is the path followed by a Javelin projected horizontally by an athelete ?

10. What is the significance of a null vector ?