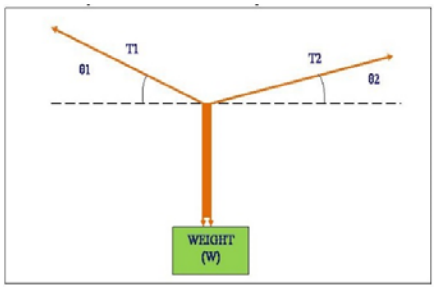
The Shri Ram School Moulsari Campus

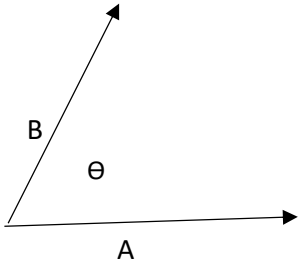
Class XI

Worksheet (Vectors)

1. Derive the formula for the sum of two vectors using triangle law of vector addition.
2. The position vectors of points A and B are A = 7i + 2i – k , B = 4i – 3j + 2k. Find displacement vector (i) AB (ii) BA.
   Also find the unit vector A and B.
3. Two Forces F_1 = 5N and F_2 = 8N are acting at a point. If angle between F_1 and F_2 is 60°, Find the resultant force.
4. Refer to the previous question find the projection of F_1 on F_2.
5. Find the dot and cross product of the two vectors A = I – j + 2k and B = 3i – 2j + 5k
6. Vector A = I – 7j + 4k is perpendicular to the vector B = 2i + aj – 4k. Find the value of a.
7. Rain is falling vertically downwards with a speed of 6 km/hr. A person is running towards west at a speed of 8 km/hr. Find the direction in which he should hold umbrella to protect himself from rain.
8. Find a unit vector perpendicular to A = 3i + 5j –2 k and B = 2I – j + 3k.
9. Force acting on a particle is given by F = 2i + j – 11k due to which the body get displaced by s = I – j – 3k. Find the work done.
10. In the diagram if Θ_1 and Θ_2 are 53° and 37° respectively and the system is in equilibrium. Find T_1 and T_2.



11. Shown are the two vectors A and B. In the vector diagram show (i) A + B
    (ii) A – B



12. A body moving uniformly with a speed ‘v’ along a circle of radius 10 cm describes an angle of 60 ^{o} at the centre. Find change in velocity.