Class XI
Kinematics worksheet 5

1. Give an example of a body moving with uniform speed but having a variable velocity and an acceleration which remains constant in magnitude but changes in direction   1

2. What is the direction of centripetal force when particle is following a circular path?   1

3. Two vectors $\vec{A}$ and $\vec{B}$ are perpendicular to each other. What is the value of $\vec{A}.\vec{B}$?   1

4. Two forces 5 and 10 kg wt are acting with an inclination of 120° between them. What is the angle which the resultant makes with 10kg wt?   2

5. A stone is thrown vertically upwards and then it returns to the thrower. Is it a projectile? Explain?   2

6. Which is greater the angular velocity of the hour hand of a watch or angular velocity of earth around its own axis?   2

7. Why does the direction of motion of a projectile become horizontal at the highest point of its trajectory?   3

8. A vector $\vec{A}$ has magnitude 2 and another vector $\vec{B}$ have magnitude 3 and is perpendicular to each other. By vector diagram find the magnitude of $2\vec{A}+\vec{B}$ and show its direction in the diagram.   3

9. Find a unit vector parallel to the resultant of the vectors $\vec{A} = 2\hat{i}+3j+4k$ and $\vec{B} = 3\hat{i}-5j+k$

10. (a) What is the angle between $\vec{A}$ and $\vec{B}$ if $\vec{A}$ and $\vec{B}$ denote the adjacent sides of a parallelogram drawn form a point and the area of the parallelogram is $\frac{1}{2}AB$?

     (b) State and prove triangular law of vector addition?

Class XI
Kinematics worksheet 6

1. What will be the effect on horizontal range of a projectile when its initial velocity is doubled, keeping the angle of projection same?   1

2. What will be the effect on maximum height of a projectile when its angle of projection is changed from 30° to 60°, keeping the same initial velocity of projection?   1

3. What is the angular velocity of the hour hand of a clock?   1

4. A body is moving on a curved path with a constant speed. What is the nature of its acceleration?   2

5. A stone tied at the end of string is whirled in a circle. If the string breaks, the stone flies away tangentially. Why?   2

6. What are the two angles of projection of a projectile projected with velocity 30m/s, so that the horizontal range is 45m? Take, g = 10m/s^2.   2

7. The blades of an aero-plane propeller are rotating at the rate of 600 revolutions per minute. Calculate its angular velocity.   3

8. What is a uniform circular motion? Explain the terms time period, frequency and angular velocity. Establish relation between them.   3

9. A body of mass m is thrown with velocity 'u ' at angle of 30° to the horizontal and another body B of the same mass is thrown with velocity u at an angle of 60° to the horizontal. Find the ratio of the horizontal range and maximum height of A and B?   3