1. Find the equation of Ellipse, which is passing through the points (1, 4) and (- 6, 1).

2. Find the equation of Hyperbola for which the distance from one vertex to two foci are 9 and 1.

3. If the maximum horizontal range is 200 m, find the minimum velocity for that.

4. Find the equation of the incircle of the triangle formed by the following lines - x = 2, 4x + 3y = 5 and 4x - 3y + 13 = 0.

5. Prove by vectors, that if the median on the base of a triangle is also altitude on the base, the triangle is isosceles.

6. There are two forces (2, 5, 6) and (-1, 2, 1) that act on a particle and as a result of which the particle moves from A (4, -3, -2) to B (6, 1, -3). Find the work done.

7. Obtain the equation of a plane that passes through the points (2, 3, -4) and (1, -1, 3), and that is parallel to X-axis.

8. The equation of the line containing one of the sides of an equilateral triangle is x + y = 2 and one of the vertices of the triangle is (2, 3). Find the equations oflines containing the remaining sides of the triangle.

9. Prove that of all the rectangles having the same area, the square has minimum perimeter.

10. If G and I are respectively the centroid and incentre of the triangle whose vertices are A(-2, -1), B(1, -1) and C(1, 3), find IG.

11. Find the foot of the perpendicular and equation of perpendicular line passing through (2, -1, 2) to plane 2x- 3y + 4z = 44.

12. Find the equation of a circum-circle of the triangle formed by the lines X + y = 6, 2x + y = 4 and X + 2y = 5.

13. Find the co-ordinates C and D for the square ABCD, if A (-1, 3) and B (2, -2).

14. Find the equation of the Plane passing through the line of intersection of the planes 3x - 4y+ 5z = 10 and 2x + 2y - 3z = 4 and parallel to the line X = 2y = 3z.

15. The lines x - 2y + 2 = 0, 3x - y + 6 = 0 and x - y = 0 contain the three sides of a triangle. Determine the co-ordinates of the orthocentre without finding the co-ordinates of the vertices of the triangle.

16. The slope of the tangent at the point (1, 1) on the curve xy + ax + by = 2 is 2, find a and b.

17. Prove by using vectors that the perpendiCular bisectors of the sides of a triangle are concurrent.

18. A body projected in vertical direction attains maximum height 16 m. Find its initial velocity

19. Find the equation of the circle that touches the Y-axis and passes through (- 2, 1) and (- 4, 3).