CHAPTER-11
COORDINATE GEOMETRY

EXERCISE - 10.3

State whether the following statements are true false. Justify your answer

1. Reduce the following equatons into slope intercept and find their slopes and the y-intercepts
   (a) $x + 7y = 0$
   (b) $6x + 3y - 5 = 0$
   (c) $y = 0$
2. Reduce the following equations into intercept form and find their intercepts on the axes.
   (a) $3x + 2y - 12 = 0$
   (b) $4x - 3y = 6$
   (c) $3y + 2 = 0$
3. Reduce the following equations into normal form. Find their perpendicular distances from the origin and angle between perpendicular and the positive x-axis.
   (a) $x - \sqrt{3}y + 8 = 0$
   (b) $y - 2 = 0$
   (c) $x - y = 4$
4. Find the distance of the point (-1,1) from the line $12(X+6) = 5(Y-2)$.
5. Find the points on the x-axis, whose distances from the line $\frac{x}{3} + \frac{y}{4} = 1$ are 4 units
6. Find the distance between parallel lines
   (a) $15x + 8y - 34 = 0$ and $15x + 8y + 31 = 0$
   (b) $l(x + y) + p = 0$ and $(x + y) - r = 0$.

7. Find equation of the line parallel to the line $3x-4y+2=0$ and passing through the point $(-2,3)$.

8. Find equation of the line perpendicular to the line $x-7y+5=0$ and having x intercept 3.

9. find angles between the lines $\sqrt{3x}+y=1$ and $x+\sqrt{3y}=1$.

10. The line through the points $(h,3)$ and $(4,1)$ intersects the line $7x-9y-19=0$. at right angle. Find the value of h.

11. Prove that the line through the point (x_1,y_1) and parallel to the line $Ax+By+C=0$ is $A(x-x_1)+B(y-y_1)=0$.

12. Two lines passing though the point (2,3) intersects each other at angle of $60°$. If slope of one line is 2, find equation of the other line.

13. Find the equation of the right bisector of the line segment joining the points $(3,4)$ and $(-1,2)$.

14. Find the coordinates of the foot of perpendicular from the point (-1,3) to the line $3x-4y-16=0$.

15. The perpendicular from the origin to the line $y=mx+c$ meets it at the point (-1,2). Find the values of m and c.

16. If p and q are the lengths of perpendiculars from the origin to the lines $x\cos\theta-y\sin\theta=k\cos 2\theta$ and $x\sec\theta+y\csc\theta=k$, respectively, prove that $p^2+4q^2=k^2$.

17. In the triangle **ABC** with vertices $\mathbf{A}(2,3),\mathbf{B}(4,-1)$ and $\mathbf{C}(1,2)$, find the equation and length of altitude from the vertex **A**.

18. If p is the length of perpendicular from the origin to the line whose intercepts on the axes are a and b, then show that $\frac{1}{p^2}=\frac{1}{a^2}+\frac{1}{b^2}$.