EXERCISE 9.2

In Exercises 1 to 8, find the equation of the line which satisfy the given conditions:

1. Write the equations for the x-and y-axes.

2. Passing through the point $(-4, 3)$ with slope $\frac{1}{2}$

3. Passing through $(0, 0)$ with slope m.

4. Passing through $\left(2, 2\sqrt{3}\right)$ and inclined with the x-axis at an angle of 75°.

5. Intersecting the x-axis at a distance of 3 units to the left of origin with slope -2.

6. Intersecting the y-axis at a distance of 2 units above the origin and making an angle of 30° with positive direction of the x-axis.

7. Passing through the points $(-1, 1)$ and $(2, -4)$.

8. The vertices of Δ PQR are P (2, 1), Q (–2, 3) and R (4, 5). Find equation of the median through the vertex R.

9. Find the equation of the line passing through $(-3, 5)$ and perpendicular to the line through the points $(2, 5)$ and $(-3, 6)$.

10. A line perpendicular to the line segment joining the points $(1, 0)$ and $(2, 3)$ divides it in the ratio $1 : n$. Find the equation of the line.

11. Find the equation of a line that cuts off equal intercepts on the coordinate axes and passes through the point (2, 3).

12. Find equation of the line passing through the point (2, 2) and cutting off intercepts on the axes whose sum is 9.

13. Find equation of the line through the point (0, 2) making an angle $\frac{2\pi}{3}$ with the positive x-axis. Also, find the equation of line parallel to it and crossing the y-axis at a distance of 2 units below the origin.

14. The perpendicular from the origin to a line meets it at the point (–2, 9), find the equation of the line.

15. The length L (in centimetre) of a copper rod is a linear function of its Celsius temperature C. In an experiment, if L = 124.942 when C = 20 and L= 125.134 when C = 110, express L in terms of C.

16. The owner of a milk store finds that, he can sell 980 litres of milk each week at Rs 14/litre and 1220 litres of milk each week at Rs 16/litre. Assuming a linear relationship between selling price and demand, how many litres could he sell weekly at Rs 17/litre?

17. P (a, b) is the mid-point of a line segment between axes. Show that equation of the line is $\frac{x}{a}+\frac{y}{b}=2$.

18. Point R (h, k) divides a line segment between the axes in the ratio 1: 2. Find equation of the line.

19. By using the concept of equation of a line, prove that the three points (3, 0), $(-2, -2)$ and (8, 2) are collinear.