Class XI Maths

Assignment : Straight Lines

1. Find the equation of the line passing through:
   a) (– 2, 5) and (8, 7) b) (3, – 1) and (– 4, – 5)
2. Find the equation of the line:
   a) passing through (3, 2) and having slope – 1/3
   b) making intercepts – 2/3 and – 4/3 on the axes.
   c) passing through (– 1, 6) and making an angle of 150° with the positive x – axis.
3. Find the value of p such that the line passing through (– 4, p) and (1, 3) is : a) parallel b) perpendicular to the line passing through the points (– 2, 5) and (8, 7).
4. For what values of x, the area of the triangle formed by the points (5, – 1), (x, 4) and (6, 3) is 5.5 sq. units?
5. Show that the points (– 1, 2), (5, 0) and (2, 1) are collinear by using a) distance formula b) area formula.
6. Find the value of m and c so that the line with the equation y = mx + c may pass through the points (– 2, 3) and (4, – 3).
7. Find the equation of the line passing through (– 4, – 5) and perpendicular to the line passing through the points (– 2, 3) and (4, – 3).
8. The mid points of the sides of a triangle are (2, 2), (2, 3) and (4, 6). Find the vertices and the equation of the sides of the triangle.
9. Find the equation of the perpendicular bisector of the line segment joining the points (0, 3) and (– 4, 1).
10. Find the angle between the lines joining the points (3, – 1) to (2, 3) and (2, 7) to (5, 12).
11. Find the equation in normal form:
    a) $p = 3$; $\omega = 315°$ b) $p = \sqrt{3}$; $\omega = 240°$ c) $p = 1$; $\omega = -60°$

ANSWERS

1. a) $x - 5y + 27 = 0$ b) $4x - 7y - 19 = 0$
2. a) $x + 3y - 9 = 0$ b) $6x + 3y + 4 = 0$ c) $x + \sqrt{3}y - 6\sqrt{3} + 1 = 0$
3. a) $p = 2$ b) $p = 28$
4. $x = 9$ or $7/2$
5. Find AB, BC and AC…..sum of any two distances should be equal to third distance.
6. Substitute the coordinates for x and y to form two equations . solve to get $m = -1$ and $c = 1$.
7. $x - y - 1 = 0$
8. vertices are (4, 5), (4, 7) and (0, - 1).
   Equation of the sides are $x = 4$, $3x - 2y - 2 = 0$ and $2x - y - 1 = 0$
9. perpendicular bisector passes thru the mid- point, then use $m_1.m_2 = -1$ **ans**: $2x + y + 2 = 0$.
10. 45°
11. a) $x - y = 3\sqrt{2}$ b) $x + \sqrt{3}y + 2\sqrt{3} = 0$ c) $x - \sqrt{3}y - 2 = 0$