Important Questions 2010
Class-XII- Maths
Straight Lines

Q.1. Find the value of K such that the line joining the points (2, K) and (-1, 3) is parallel to the line joining (0, 1) and (-3, 1).

Q.2. Show that points (a, b + c), (b, c + a), (c, a + b) are collinear.

Q.3. Show that points (at12 , 2at1) , (at22 , 2at2) and (a , 0) are collinear if t1t2 = - 1

Q.4. The slope of a line is double of the slope of another line. If tangent of the angle between them is 1/3, find the slope of the lines.

Q.5. Find the equation of the straight line passing through (4,-2) and making an angle of 600 with the negative direction of Y axis.

Q.6. 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.

Q.7. The slope of a line is double of the slope of another line. If tangent of the angle between them is 1/3, find the slope of the lines.

Q.8. Three points P (h, k), Q (x1, y1) and R (x2, y2) lie on a line. Show that

(h x1) (y2 y1) = (k y1) (x2 x1).

Q.9. Find the equation of the line that has y intercept 4 and is parallel to the line 2x 3y =7

Q.10. Find the equation of the line that has x intercept - 3 and is perpendicular to line 3x+5y =4.

Q.11. Prove that the lines 7x 2y + 5 = 0 and 14x 4y 8 = 0 are parallel to each other.

Q.12. Prove that the lines 3x 2y + 5 = 0 and 4x + 6y 23 = 0 are perpendicular.

Q.13. The slope of a line is double of the slope of another line. If tangent of the angle between them is 1/3, find the slope of the lines.

Q.14. 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.

Q.15. Find the coordinates of the orthocentre of the triangle formed by the lines x+y-6=0 and 3y = 5x + 2.

Q.16. Find the equation of a line that cuts off equal intercepts on the coordinate axes and passes through the point (2, 3).

Q.17. Find the equation of a line which passes through the point (3, - 2) and is inclined at 600 to the line $\sqrt{3}x + y = 1$.

Q.18. Find the equation of a line which passes through the point (x1 , y1) and perpendicular to the line xy1 + x1y = a2

Q.19. Find equation of the line passing through the point (2,2) and cutting off intercepts on the axes whose sum is 9.

Q.20. Reduce the equation Ö3 x + y 8 = 0 into normal form. Find the value of w and p.

Q.21. If p and q are the lengths of perpendiculars from the origin to the lines x cosq y sinq = k cos 2q and x sec q + y cosec q = k, respectively, prove that p2 + 4 q2 = k2.

Q.22. A line such that its segment between the axis is bisected at the point (x1, y1). prove that the equation of the line is $\frac{x}{2x_1}+\frac{y}{2y_2}=1$

Q.23. In the triangle ABC with vertices A (2, 3), B (4, 1) and C (1, 2), find the equation and length of altitude from the vertex A.

Q.24. Find equation of the line which is equidistant from parallel lines 9x + 6y -7 =0 and 3x + 2y +6=0

Q.25. Find the distance of the point (-1,1) from the line 12(x + 6) =5(y - 2).

Q.26. In what ratio, the line joining (-1, 1) and (5, 7) is divided by the line x + y =4.

Q.27. A line is such that its segment between the lines 5x y + 4 = 0 and 3x + 4y 4 = 0 is bisected at the point (1, 5). Obtain its equation.

Q.28. Find the distance of the point (2, 3) from the line 2 x 3 y + 9 = 0 measured along a line x y + 1 = 0.

Q.29. Find equation of the line which is equidistant from parallel lines 9x + 6y 7 = 0 and 3x + 2y + 6 = 0.

Q. 30. Find the length of the perpendicular drawn from the point (b, a) to the line $\frac{x}{a}+\frac{y}{b}=1$

Q.31. Find the angle between the lines $y=(2-\sqrt{3})x+9 \;\&\; y=(2+\sqrt{3})x+1$ Find the equation of the bisector of $\angle A \text{ of } \Delta ABC$ whose vertices are A(-2, 4), B(5,5) and C(4, -2).

Q.32. Reduce $x-y+2\sqrt{2}=0$ in to normal form and hence find the value of p.

Q.33. Find the equation of the line mid parallel to the lines 9x + 12y - 15 = 0 and 3x + 4y - 15 = 0

Q.34. If p is the length of perpendicular from origin to the line $\frac{x}{a}+\frac{y}{b}=1,$ then show that $\frac{1}{P^2}=\frac{1}{a^2}+\frac{1}{b^2}$.

Q.35. P (a, b) is the mid point of a line segment between the axes. Show that the equation of the line is x / a + y / b = 2.

Q.36. Find out the angle between the following pair of lines

y √3x 5 = 0 and √3y x + 6 = 0

y = (2 √3)x + 5 and y = (2 + √3)x 2

Q.37. Find the coordinates of the foot of the perpendicular from the point (-1,3) to the line 3x 4y 16=0.

Q.38. One side of a recatngle lie along the line 4x + 7y +5 = 0. Two of its vertices are (-3,1) and (1,1). Find the equation of the diagonals of the rectangle.

Q. 39. A person standing at the junction (crossing) of two straight paths represented by the equations 2x 3y + 4 = 0 and 3x + 4y 5 = 0 wants to reach the path whose equation is 6x 7y + 8 = 0 in the least time.Find equation of the path that he should follow.

Q.40. Find the image of the point (1, -2) on the line y = 2x + 1.

Q. 41. A ray of light is sent along the line x - 2y - 3 = 0. Upon reaching the line 3x - 2y - 5 = 0 the ray is reflected from it. Find the equation of the line containing the reflected ray.

Q.42. Find the image of the point (3, 8) with respect to the line x + 3y = 7 assuming the line to be a plane mirror.

Q.43. Assuming that straight lines work as the plane mirror for a point, find the image of the point (1, 2) in the line x 3y + 4 = 0.

Q.44. Find the distance of the point A(2, 3) from the line 2x - 3y + 9 = 0 measure along a line making an anagle of 450 with X axis.

Q.45. Find the value of p so that the three lines 3x + y 2 =0, px + 2y -3 = 0 and 2x y -3 = 0 may intersect at one point.

Q.46. Show that the area of the triangle formed by the lines

Y = m1x + C1 , y = m2x + C2 and x = 0 is $\frac{(c1-c2)^2}{2|m_1 - m_2|}$

Q.47. If S1, S2 and S3 be respectively the sum of n, 2n and 3n terms of a GP, prove that S1(S3-S2)=(S2-S1)2