

1. Find the slope of a line which makes the following angle with x – axis.
i) 30° ii) 150° iii) 240° iv) 315°
2. Find the slope of each of the lines passing through the points.
i) A(3, 2), B(-1, 6) ii) P(0, 2), Q(1, 5) iii) R(a^2 , b), S(b^2 , a)
3. Slope of a line joining the points (7, 3) and (k, 2) is - 4. Find the value of k.
4. Determine whether the line joining the following points are parallel, perpendicular or neither:
i) (3, 7), (1, 4) and (-2, 4), (0, 3) ii) (1, 4), (3, 6) and (-1, 5), (2, 8)
5. Show that the line joining (-2, 6) and (4, 8) is perpendicular to the line joining (8, 12) and (4, 24).
6. Without using Pythagoras theorem, show that the points (1, 2), (4, 5) and (6, 3) represent the vertices of a right triangle.
7. Find the value of p such that the line passing through the points (-4, p) and (1,3) is
i) parallel ii) perpendicular to the line passing through the points (-2, 5) and (8, 7).
8. Using slopes, find the value of x for which the point (x, -1), (2, 1) and (4, 5) are collinear.
9. Show that the points (at_1^2 , $2at_1$), (at_2^2 , $2at_2$) and (a,0) are collinear if $t_1t_2 = -1$
10. Show that the points (-2, -1), (1, 0) (4, 3), and (1, 2) are the vertices of a parallelogram.
11. A line passes through (x_1 , y_1) and (h, k). If the slope of the line is m, show that $k - y_1 = m(h - x_1)$
12. If three points (h, 0) , (a, b) and (0, k) lie on a line, Show that $\frac{a}{h} + \frac{b}{k} = 1$.
13. Find the slope of the line, which makes an angle 30° with the positive direction of y – axis measured anticlockwise.
14. The slope of a line is double of the slope of another line. If tangent of the angle between them is $\frac{1}{3}$, find the slopes of the lines.
15. Find the angle between the X- axis and the line joining the points (3, -1) and (4,-2).
16. Find the equation of the line parallel to x – axis at a distance of
i) 3 units above x – axis.
ii) 4 units below x – axis.
17. Find the equation of a line passing through (2, -3) and inclined at an angle of 135° with the positive direction of x – axis.
18. Determine the equation of line through the point (-4, -3) and parallel to x – axis.
19. Find the equation of the line joining the points i) (-1, 3) and (4, -2) ii) (at_1^2 , $2at_1$) and (at_2^2 , $2at_2$).
20. Find the equation of the perpendicular bisector of the line segment joining the points A(2,3) and B(6, -5).
21. Find the equations of the medians of the triangle ABC whose vertices are A (2,5), B(-4,9) and C(-2, -1)
22. Find the equation of the line passing through (-3, 5) and perpendicular to the line through the points (2, 5) and (-3, 6)
23. Find the equation of the line i) passing through (3, 4) and sum of its intercepts on the axes is 14.
ii) passing through (2, 2) and sum of its intercepts on the axes is 9.
24. Find the 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.
25. In what ratio is the line joining the points (2, 3) and (4, -5) divide by the line passing through the points (6, 8) and (-3, -2)
26. Perpendicular distance from the origin is 5 units and the angle made by the perpendicular with the positive x – axis is 30° . Find the equation of the line.
27. Perpendicular distance from the origin is 7 units and the line makes an angle of 150° with the positive direction of y – axis. Find the equation of the line.
28. Using distance formula show that the points (-3, -5), (1, -6) and (-7, -4) are collinear.

29. Using slope formula show that the points (3, 5), (1, 1) and (-2, -5) are collinear.
30. Find the co – ordinates of the point which divides the join of (5, -4) and (-3, 2) internally in the ratio 1 : 2.
31. Find the co-ordinates of the point, which divides the join of (2, -6) and (4, 3) externally in the ratio 3 : 2.
32. Prove that the points (-2, 2) , (8, -2) and (-4, -3) are the vertices of a right angled triangle.
33. Show that the points (a, a), (-a, -a) and ($-\sqrt{3} a$, $\sqrt{3} a$) are the vertices of an equilateral triangle.
34. Show that the points A(1, 0), B(5, 3), C(2, 7) and D(-2, 4) are the vertices of a square.
35. Find the distance between points A(cos θ , sin θ) and B(sin θ , cos θ).
36. Find x, if the slope of the line joining (-8, 11) and (2, x) is $-\frac{4}{3}$.
37. The line joining (-5, 7) and (0, -2) is perpendicular to the line joining (1, 3) and (4, x). Find x.