MATHS

BOOKS - DEEPTI MATHS (TELUGU ENGLISH)

CIRCLE

Solved Example

1. Origin is the centre of a circle passing through the vertices of an equilateral triangle whose median is of length 3a then the equation of the circle is

A. $x^2 + y^2 = 36$

B. $x^2 + y^2 = 64$

C. $x^2 + y^2 = 16$

D. $x^2 + y^2 = 4$

Answer: D

Watch Video Solution

2. The lines 2x-3y=11 and 3x-4y=18 are two diameters of a circle of area 154 eq unit. Then the equation of this circle is

A. $x^2 + y^2 - 2x - 2y - 62 = 0$

B. $x^2 + y^2 - 4x + 6y - 36 = 0$

C. $x^2 + y^2 - 12x - 12y - 47 = 0$

D. $x^2 + y^2 - 2x + 2y - 62 = 0$

Answer: B

Watch Video Solution

3. A square is inscribed in the circle $x^2 + y^2 - 2x + 4y - 3 = 0$ with its sides parallel to the coordinate axes. One vertex of the square is

A. (3,4)

B. (3,-4)

C. (8,-5)

D. (-8,5)

Answer: B

Watch Video Solution

4. The lines 3x-4y +4=0 and 6x-8y-7=0 are tangents to the same circle. The radius of the circle is

A. $3/2$

B. $3/4$

C. $3/8$

D. none

Answer: B

Watch Video Solution

5. If the lengths of the tangents from two points A, B to a circle are 4, 3 respectively. If A,B are conjugate points then AB=

A. 5

B. $\sqrt{85}$

C. $\sqrt{85}/2$

D. none

Answer: A

Watch Video Solution

6. If the lines $2x - 3y + 7 = 0, 3x + ky + 5 = 0$ cut the coordinate axes in concyclie points then k=

A. 2

B. 3

C. -2

D. -3

Answer: C

Watch Video Solution

7. If (3,-2) is the midpoint of the chord AB of the circle $x^2 + y^2 - 4x + 6y - 5 = 0$ then AB=

A. 4

B. 8

C. 12

D. 16

Answer: B

Watch Video Solution

8. If the four points of intersection of the lines $2x + y - 1 = 0, x + 2y + 2 = 0$ with the coondinate axes lie on a circle then its centre is

A. (0,0)

B. (3/4,0)

C. (0,3/4)

D. (-3/4,0)

Answer: D

Watch Video Solution

9. If the circles $x^2 + y^2 + 4x - 2y - 220 = 0, x^2 + y^2 - 4x + 4y - 92 = 0$ touch each other then the points of contact is

A. (-2,1)

B. (2,-2)

C. (10,-8)

D. (0,-1)

Answer: C

Watch Video Solution

10. The angle between the circles $x^2 + y^2 - 4x - 6y - 3 = 0$," $x^2 + y^2 + 8x - 4y + 11 = 0$" is

A. $\pi / 3$

B. $\pi / 2$

C. $\pi / 5$

D. $\pi / 4$

Answer: A

Watch Video Solution

11. The number of common tangents that can be drawn to the circles $x^2 + y^2 - 4x + 6y + 8 = 0, x^2 + y^2 - 10x - 6y + 14 = 0$

A. 1

B. 2

C. 3

D. 4

Answer: C

Watch Video Solution

12. If the coordinates of the centre of the circle are roots of the equations $6x^2 - 5x + 1 = 0$ and radius is 5/6 them its equation is

A. $x^2 + y^2 - 3x - 2y - 1 = 0$

B. $3\left(x^2+y^2\right)-3x-2y-1=0$

C. $3\left(x^2+y^2\right)+3x+2y+1=0$

D. $x^2+y^2+3x+2y+1=0$

Answer: B

Watch Video Solution

13. The value of the parameter of two points A and B lying on the circle, $x^2+y^2-6x+4y-12=0$ are $30^\circ, 90^\circ$ respectively. The equation of the chord joining A and B is

A. $x+\sqrt{3}y=0$

B. $x-\sqrt{3}y=0$

C. $x+\sqrt{3}y-3\left(1+\sqrt{3}\right)=0$

D. $\sqrt{3}x+\sqrt{3}y+61=0$

Answer: C

Watch Video Solution

14. If α, β are roots of $3x^2 - 6x + 2 = 0$ then the equation of circle with centre $(\alpha + \beta, \alpha\beta)$ and radius $\left(\alpha^2 + \beta^2\right)$ is

A. $x^2 + y^2 - 36x - 12y + 24 = 0$

B. $x^2 + y^2 - 36x - 12y - 24 = 0$

C. $9\left(x^2 + y^2\right) - 36x - 12y - 24 = 0$

D. $9\left(x^2 + y^2\right) + 36x + 12y - 24 = 0$

Answer: C

Watch Video Solution

15. If $x^2 + y^2 + 2gx + 6y + 5g + 3 = 0$ represents a circle then $g \in$

A. R-(2,3)

B. R

C. (2,3)

D. $(-\infty, 0)$

Answer: A

Watch Video Solution

Exercise 1A(Circle)

1. The equation of the circle with centre (3, -2) and radius 3 is

A. $x^2 + y^2 - 6x + 4y + 4 = 0$

B. $x^2 + y^2 - 4x + 6y + 9 = 0$

C. $x^2 + y^2 + 14x + 6y - 42 = 0$

D. $x^2 + y^2 + 2x + 16y + 40 = 0$

Answer: A

Watch Video Solution

2. The equatinn of the circle with centre origin and radius 2 is

A. $x^2 + y^2 - 6x + 4y + 4 = 0$

B. $x^2 + y^2 = 4$

C. $x^2 + y^2 - 4x + 6y - 12 = 0$

D. $x^2 + y^2 + 2x + 16y + 40 = 0$

Answer: B

Watch Video Solution

3. The centre of the circle $x^2 + y^2 - 4x - 2y - 4 = 0$ is

A. $(2, 1)$

B. $(0, 0)$

C. $(-2, -1)$

D. `(1,-1)

Answer: A

Watch Video Solution

4. The centre of the circle $\left(1+m^2\right)\left(x^2+y^2\right)-2cx-2cmy=0$ is

A. $\left(\frac{c}{1+m^2}, \frac{cm}{1+m^2}\right)$

B. $\left(-\frac{c}{1+m^2}, \frac{cm}{1+m^2}\right)$

C. $\left(\frac{c}{1+m^2}, -\frac{cm}{1+m^2}\right)$

D. $\left(-\frac{c}{1+m^2}, -\frac{cm}{1+m^2}\right)$

Answer: A

Watch Video Solution

5. The radius of the circle $x^2+y^2+6x+8y-96=0$ is

A. 11

B. $\frac{\sqrt{19}}{2}$

C. $\frac{4}{\sqrt{3}}$

D. 20

Answer: A

Watch Video Solution

6. The radius of the circle $\left(1+m^2\right)\left(x^2+y^2\right)-2cx-2cmy=0$ is

A. 11

B. $\frac{\sqrt{19}}{2}$

C. $\frac{4}{\sqrt{3}}$

D. $\frac{c}{\sqrt{1+m^2}}$

Answer: D

Watch Video Solution

7. The length of the diameter of the circle $x^2 + y^2 - 6x - 8y = 0$ is

A. 5

B. 10

C. 15

D. 20

Answer: B

Watch Video Solution

8. The equation of the circle passing through (-7, 1) and having centre at (-4, -3) is

A. $x^2 + y^2 + 8x + 6y = 0$

B. $x^2 + y^2 + 4x - 16y - 101 = 0$

C. $x^2 + y^2 - 4x - 6y = 0$

D. $x^2 + y^2 = 5$

Answer: A

Watch Video Solution

9. The diameters of a circle pre along 2x+y-7=0 and x+3y- 11=0. Then, the equation of this circle, which also passes through (5,7) is:

A. $x^2 + 4y^2 - 4x - 6y - 16 = 0$

B. $x^2 + y^2 - 4x - 6y - 20 = 0$

C. $x^2 + y^2 - 4x - 6y - 12 = 0$

D. $x^2 + y^2 + 4x + 6y - 12 = 0$

Answer: C

Watch Video Solution

10. If the lines 2x -3y=5 and 3x-4y=7 are two diameters of a circle of radius 7, then the equation of the circle is

A. $x^2 + y^2 + 2x - 4y - 47 = 0$

B. $x^2 + y^2 = 49$

C. $x^2 + y^2 - 2x + 2y - 47 = 0$

D. $x^2 + y^2 = 17$

Answer: C

Watch Video Solution

11. The length of the diameter of the circle which touches the x-axis at the point (1, 0) and passes through the point (2, 3) is

A. $6/5$

B. $5/3$

C. $10/3$

D. $3/5$

Answer: C

Watch Video Solution

12. If $2x^2 + by^2 + 4x - 6y - 1 = 0$ represents a circle, then b=

A. 2

B. 3

C. 1

D. 0

Answer: A

Watch Video Solution

13. If $x^2 + y^2 - 4x + 6y + c = 0$ represents a circle of radius 5 then c=

A. -2

B. -12

C. -3

D. 1

Answer: B

Watch Video Solution

14. If $x^2 + y^2 + 2gx + 2fy + 9 = 0$ represents a circle with centre $(1, -3)$ then radius =

A. 1

B. 2

C. 3

D. -1

Answer: A

Watch Video Solution

15. The point (-1,0) lies on the circle $x^2 + y^2 - 4x + 8y + k = 0$. The radius of the circle is

A. 4

B. 5

C. 3

D. none

Answer: B

Watch Video Solution

16. The centroid of an equilateral triangle is (0, 0) and the length of the altitude is 6. The equation of the circumcirele of the triangle is

A. $x^2 + y^2 = 6$

B. $x^2 + y^2 = 16$

C. $x^2 + y^2 = 9$

D. $x^2 + y^2 = 36$

Answer: B

Watch Video Solution

17. Origin is the centre of a circle passing through the vertices of an equilateral triangle whose median is of length 3a then the equation of the circle is

A. $x^2 + y^2 = 9a^2$

B. $x^2 + y^2 = 16a^2$

C. $x^2 + y^2 = 4a^2$

D. $x^2 + y^2 = a^2$

Answer: C

Watch Video Solution

18. The circumcircle of a triangle is given by $x^2 + y^2 - 4x + 6y - 3 = 0$.

The radius of the nine point circle of the triangle is

A. 2

B. 3

C. 4

D. 1

Answer: A

Watch Video Solution

19. The centres of the three circles $x^2 + y^2 - 10x + 9 = 0, x^2 + y^2 - 6x + 2y + 1 = 0, x^2 + y^2 - 9x - 4y +$

lie on the line

A. $x - 2y = 5$

B. y-2x=5

C. 2y-x=5

D. none

Answer: D

Watch Video Solution

20. For the circle $x^2 + y^2 - 4x - 2y - 36 = 0$, the point (3, 5)

A. lies inside the circle

B. lies outside the circle

C. lies on the circle

D. is the centre of the circle

Answer: A

Watch Video Solution

21. For the circle $2x^2 + 2y^2 - 5x - 4y - 3 = 0$ the point (3, 5)

A. lies inside the circle

B. lies outside the circle

C. lies on the circle

D. is the centre of the circle

Answer: B

Watch Video Solution

22. The power of the point (1, 2) w.r.t the circle x^2 + y^2-4x-6y - 12 =0 is

A. -23

B. 0

C. 69

D. 17

Answer: A::D

Watch Video Solution

23. The value of a, such that the power of the point (1, 6) with respect to the circle $x^2 + y^2 + 4x - 6y - a = 0$ is -16 is

A. 7

B. 11

C. 13

D. 21

Answer: D

Watch Video Solution

24. The equation $\left(x^2 - a^2\right)^2 + \left(y^2 - b^2\right)^2 =$ represent points which are

A. collinear

B. on a circle with centre (a,b)

C. on a circle with centre (0,0)

D. coincident

Answer: D

Watch Video Solution

25. The equation $x^2 + y^2 + 4x + 6y + 13 = 0$ represents

A. a circle

B. a pair of two straight lines

C. a pair of coincident straight lines

D. a point

Answer: D

Watch Video Solution

26. The locus of a point which divides the join of A(-1, 1) and a variable point P on the circle $x^2 + y^2 = 4$ in the ratio 3:2 is

A. $25(x^2 + y^2) + 20(x + y) + 28 = 0$

B. $25(x^2 + y^2) - 20(x + y) + 28 = 0$

C. $25(x^2 + y^2) + 20(x - y) + 28 = 0$

D. $25(x^2 + y^2) + 20(x - y) - 28 = 0$

Answer: D

Watch Video Solution

27. If the two circles $x^2 + y^2 + 2gx + c = 0$ and $x^2 + y^2 - 2fy - c = 0$ have equal radius then locus of (g,f) is

A. $x^2 + y^2 = c^2$

B. $x^2 - y^2 = 2c$

C. $x - y^2 = c^2$

D. none

Answer: B

Watch Video Solution

28. The locus of the point which moves such that the sum of the squares of its distances from (0, a) and (0,- a) is $2r^2$ is

A. $x^2 + y^2 = a^2$

B. $x^2 + y^2 = r^2$

C. $x^2 + y^2 = r^2 + a^2$

D. $x^2 + y^2 = r^2 - a^2$

Answer: D

Watch Video Solution

29. The radius of the circle passing through the point (6, 2) and two of whose diameters are x+y=6 and x+ 2y =4 is

A. 10

B. $2\sqrt{5}$

C. 6

D. 4

Answer: B

Watch Video Solution

30. Equation of the circle with radius 10 and whose two diameters are $x + y = 6$ and $x + 2y = 4$ is

A. $x^2 + y^2 + 16x - 4y - 32 = 0$

B. $x^2 + y^2 - 16x + 4y - 32 = 0$

C. $x^2 + y^2 - 16x + 4y + 32 = 0$

D. none

Answer: B

Watch Video Solution

31. If the line 3x-2y + 6=0 meets X-axis and Y-axis respectively at A and B, then the equalion of the circle with radius AB and centre at A. is

A. $x^2 + y^2 + 4x + 9 = 0$

B. $x^2 + y^2 + 4x - 9 = 0$

C. $x^2 + y^2 + 4x + 4 = 0$

D. $x^2 + y^2 + 4x - 4 = 0$

Answer: b

Watch Video Solution

32. Consider the circle $x^2 + y^2 - 4x - 2y + c = 0$ whose centre is A(2, 1) If the point P (10, 7) is such that the line segment PA meets the circle in Q With PQ=5, then c=

A. -15

B. 20

C. 30

D. -20

Answer: D

Watch Video Solution

33. If A=(1, 2), B=(4, 5) then the equation of the circle having $\bar{AB}$ as diameter is

A. $x^2 + y^2 - 5x - 7y + 14 = 0$

B. $x^2 + y^2 - 8x - 2y - 51 = 0$

C. $x^2 + y^2 - 8x - 12y + 27 = 0$

D. $x^2 + y^2 - 5x - 7y + 14 = 0$

Answer: A

Watch Video Solution

34. The equation of the circle through (1, 0) and (0, 1) and having tallest possible radius

A. $x^2 + y^2 - x - y = 0$

B. $2x^2 + 2y^2 - x - y = 0$

C. $x^2 + y^2 + x + y = 0$

D. none

Answer: A

Watch Video Solution

35. Equation $x^2 + 2ax - b^2 = 0$ has real roots α, β and equation $x^2 + 2px - q^2 = 0$ has real roots γ, δ. If circle C is drawn with the points $(\alpha, \gamma), (\beta, \delta)$ as extremities of a diameter, then the equation of is

A. $x^2 + y^2 + 2ax + 2py - b^2 - q^2 = 0$

B. $x^2 + y^2 + 2ax + 2py + b^2 + q^2 = 0$

C. $x^2 + y^2 - 2ax - 2py + b^2 + q^2 = 0$

D. $x^2 + y^2 + 2ax - 2py + b^2 - q^2 = 0$

Answer: A

Watch Video Solution

36. If α, β the roots of $x^2 + ax + b = 0$ and γ, δ the roots of $y^2 + cy + d = 0$ then the equation of the circle having the equation of the circle having the line joining $(\alpha, \gamma), (\beta, \delta)$ diameter is

A. $x^2 + y^2 + ax + cy + (b + d) = 0$

B. $x^2 + y^2 + ax + cy + cy - (a + c) = 0$

C. $x^2 + axb - b = 0$

D. $x^2 - ax - b = 0$

Answer: A

Watch Video Solution

37. The circle described on the line joining the points (0,1), (a,b) as diameter cuts the X-axis in points whose abscissae are roots of the equation

A. $x^2 + ax + b = 0$

B. $x^2 - ax + b = 0$

C. $x^2 + axb - b = 0$

D. $x^2 - ax - b = 0$

Answer: B

Watch Video Solution

38. If the circles described on the line joining the points (0,1) and (α, β) as diameter cuts the axis of the points whose abscissae are the roots of the equation $x^2 - 5x + 3 = 0$ then $(\alpha, \beta) =$

A. (5,3)

B. (3,5)

C. (-5,3)

D. (3,-5)

Answer: A

Watch Video Solution

39. If one end of the diameter of the circle $x^2 + y^2 - 6x + 4y - 12 = 0$ is $(7, -5)$ then the other end of the diameter is

A. (-1,-3)

B. (-1,1)

C. (-4,3)

D. (-4,4)

Answer: B

Watch Video Solution

40. The point diametrically oppiosite to the point P (1,0) on the circle $x^2 + y^2 + 2x + 4y - 3 = 0$ is

A. (-3,4)

B. (-3,-4)

C. (3,4)

D. (3,-4)

Answer: B

Watch Video Solution

41. The normal to the circle given by $x^2 + y^2 - 6x + 8y - 144 = 0$ at (8, 8) meets the circle again at the point

A. (2,-16)

B. (2,16)

C. (-2,16)

D. (-2,-16)

Answer: D

Watch Video Solution

42. The centre and radius of the eircle with the segment of the line x+y=1 cut of by the coordinate axes as diameter are

A. $(1, 1), \sqrt{2}$

B. $(1/2, 1/2), \sqrt{2}$

C. $(1/2, 1/2), 1/\sqrt{2}$

D. (0,0),1

Answer: C

Watch Video Solution

43. If (x, 3) and (3, 5) are the ends of the diameter of a circle with centre at (2, y), then the values of x and y are

A. x=1, y=4

B. x=4, y=1

C. x=8, y=2

D. none

Answer: A

Watch Video Solution

44. The lines 2x-3y=5 and 3x-4y=7 are two diameters of a circle of area 154 sq unit. Then the equation of this circle is

A. $x^2 + y^2 + 2x - 2y - 62 = 0$

B. $x^2 + y^2 - 2x + 2y - 47 = 0$

C. $x^2 + y^2 - 12 - 2y - 47 = 0$

D. $x^2 + y^2 - 2x + 2y - 62 = 0$

Answer: B

Watch Video Solution

45. If the lines 3x-4y-7=0 and 2x-3y-5=0 are two diameters of a circle of area 49π square units, the equation of the circle is

A. $x^2 + y^2 - 2x + 2y - 62 = 0$

B. $x^2 + y^2 - 2x + 2y - 47 = 0$

C. $x^2 + y^2 + 2x - 2y - 62 = 0$

D. $x^2 + y^2 - 12 - 2y - 47 = 0$

Answer: B

Watch Video Solution

46. A variable circle passes through the fixed point A(p, q) and touches axis. The locus of the other end of the diameter through A is

A. $(x - p)^2 = 4qy$

B. $(y - q)^2 = 4px$

C. $(y - p)^2 = 4qx$

D. $(x - q)^2 = 4py$

Answer: A

Watch Video Solution

47. If the lines 2x+3y+1=0 and 3x-y-4=0 lie along diameters of a circle of circumference 10π, then the equation of the circle is

A. $x^2 + y^2 - 2x + 2y - 23 = 0$

B. $x^2 + y^2 + 2x - 2y - 23 = 0$

C. $x^2 + y^2 + 2x + 2y - 23 = 0$

D. $x^2 + y^2 - 2x - 2y - 23 = 0$

Answer: A

Watch Video Solution

48. The area of the circle (x+1)(x+2)+(y-1)(y+3)=0 is

A. $17\pi/4$

B. $17\pi/2$

C. $2\pi/17$

D. none

Answer: A

Watch Video Solution

49. The centre of the circle (x-2)(x-4)+(y-1)(y+3)=0 is

A. (3,2)

B. (3,-1)

C. (3,1)

D. (1,3)

Answer: B

Watch Video Solution

50. The centre of the circle circumscribing the triangle formed by the line 3x+4y=24 with the axes is

A. (4,3)

B. (-4,3)

C. (3,4)

D. (3,-4)

Answer: A

Watch Video Solution

51. The centre of the incircle of the triangle formed by the line $3x+4y=24$ with the axes

A. (3,3)

B. (2,2)

C. (-2,2)

D. (2,-2)

Answer: B

Watch Video Solution

52. Equation of the circle passing through A(1,2), B(5, 2) so that the angle subtended by AB at points on the circle is $\pi/4$ is

A. $x^2 + y^2 - 6x - 8 = 0$

B. $x^2 + y^2 - 6x - 8y + 17 = 0$

C. $x^2 + y^2 - 6x + 8 = 0$

D. $x^2 + y^2 - 6x - 8y - 25 = 0$

Answer: B

Watch Video Solution

53. The equation of the diameter of the circle $x^2 + y^2 + 2x - 4y - 4 = 0$ that is parallel to 3x+5y-4=0 is

A. 3x+5y=7

B. 3x+5y=-7

C. 3x-5y=7

D. 3x-5y=-7

Answer: A

Watch Video Solution

54. The straight lines joining the origin to the points of intersectiion of the line 4x+3y=24 with the curve $(x-3)^2+(y-4)^2=25$

A. are coincident

B. are perpendicular

C. made equal angles x-axis

D. none

Answer: B

Watch Video Solution

55. A straight line moves such that the algebraie-sum of the perpendiculars drawn to it from two fixed points is equal to 2k. Then the straighi line always touches a fixed circle of radius

A. 2k

B. k/2

C. k

D. none

Answer: C

Watch Video Solution

56. If the base of a triangle and the ratio of the lengths of the other two unequal sides are given, then the veterx lies on

A. a straight line

B. a circle

C. an ellipse

D. a prabola

Answer: B

Watch Video Solution

57. The condition that the chord a $x\cos\alpha + y\sin\alpha - p = 0$ of $x^2 + y^2 - a^2 = 0$ subtend a right angle at the centre of the circle is

A. $a^2 - 2p^2$

B. $p^2 = 2a^2$

C. p=2a

D. $a^2 - 2p^3$

Answer: A

Watch Video Solution

58. An equilateral triangle is inscribed in the circle $x^2 + y^2 = a^2$. The length of the side of the triangle is

A. $a\sqrt{2}$

B. $a\sqrt{3}$

C. 2a

D. none

Answer: B

Watch Video Solution

59. If an equilateral triangle is inscribed in the circle $x^2 + y^2 - 6x - 4y + 5 = 0$ then its side is

A. $\sqrt{6}$

B. 2

C. $2\sqrt{2}$

D. $2\sqrt{6}$

Answer: D

Watch Video Solution

60. A circle of radius r passes through the origin and meets the axes at A and B. The locus of the centroid of $\triangle OAB$ is

A. $x^2 + y^2 = 4r^2$

B. $x^2 + y^2 = 3r^2$

C. $3\left(x^2 + y^2\right) = r^2$

D. $9\left(x^2 + y^2\right) = 4r^2$

Answer: D

Watch Video Solution

61. $A = (\cos\theta, \sin\theta)$ and $B = (\sin\theta, -\cos\theta)$ are two points. The locus of the centroid of $\triangle OAB$ where O is the origin is

A. $x^2 + y^2 = 3$

B. $9x^2 + 9y^2 = 2$

C. $2x^2 + 2y^2 = 9$

D. $3x^2 + 3y^2 = 2$

Answer: B

Watch Video Solution

62. The equation of the circle which passes through the origin and cuts off chords of length 2 from the lines x=y and x=-y is

A. $x^2 + y^2 \pm 2\sqrt{2}x, x^2 + y^2 \pm 2\sqrt{2}y = 0$

B. $x^2 + y^2 \pm 3\sqrt{3}x = 0, x^2 + y^2 \pm 3\sqrt{3}y = 0$

C. $x^2 + y^2 + 4\sqrt{3}x = 0, x^2 + y^2 \pm 4\sqrt{3}y = 0$

D. none

Answer: A

Watch Video Solution

63. The equation of the circle concentric with $x^2 + y^2 - 2x + 8y - 23 = 0$ and passing through (2, 3) is

A. $x^2 + y^2 - 6x + 4y - 12 = 0$

B. $x^2 + y^2 - 2x + 8y - 33 = 0$

C. $x^2 + y^2 + 6x - 4y - 12 = 0$

D. $x^2 + y^2 + x + 8y + 33 = 0$

Answer: B

Watch Video Solution

64. The equation of the circle concentric with $x^2 + y^2 - 6x + 4y - 3 = 0$ and having radius 5 is

A. $x^2 + y^2 - 6x + 4y - 12 = 0$

B. $x^2 + y^2 - 2x + 8y - 33 = 0$

C. $x^2 + y^2 + 6x - 4y - 12 = 0$

D. $x^2 + y^2 + x + 8y + 33 = 0$

Answer: A

Watch Video Solution

65. The equation of the circle concentric with the circle $x^2 + y^2 - 6x + 12y + 15 = 0$ and of double its area is:

A. $x^2 + y^2 - 6x + 12y - 15 = 0$

B. $x^2 + y^2 - 6x + 12y - 30 = 0$

C. $x^2 + y^2 - 6x + 12y - 25 = 0$

D. $x^2 + y^2 - 6x + 12y - 20 = 0$

Answer: A

Watch Video Solution

66. The equation of the circle passing through the points of intersection of the circle $x^2 + y^2 - 2x + 4y - 20 = 0$, the line 4x-3y-10 =0 and the point (3, 1) is

A. $x^2 + y^2 - 50x + 40y + 100 = 0$

B. $2x^2 + 3y^2 + 100x + 40y + 100 = 0$

C. $x^2 + y^2 + 50x - 40y + 100 = 0$

D. $3x^2 + 4y^2 + 50x + 20y + 100 = 0$

Answer: A

Watch Video Solution

67. The equation of the circle passing through (0,0), (0,a), (a,0) is

A. $x^2 + y^2 + ax + ay = 0$

B. $x^2 + y^2 - ax - ay = 0$

C. $x^2 + y^2 + 2ax + 2ay = 0$

D. none

Answer: B

Watch Video Solution

68. The equation of the circle passing through the points (1, 1),(2,-1),(3,2) is

A. $x^2 + y^2 + 2x + 3y = 0$

B. $x^2 + y^2 - 5x - y + 4 = 0$

C. $x^2 + y^2 - x - y = 0$

D. $x^2 + y^2 - ax - by = 0$

Answer: B

Watch Video Solution

69. The circle passing through the points (1, t), (t, 1) and (t, t) for all values of t passes through the point

A. (-1,-1)

B. (-1,1)

C. (1,-1)

D. (1,1)

Answer: D

Watch Video Solution

70. The centre of the circle passing through the points (a,b),(a,-b),(a+b,a-b) is

A. $\left(\frac{a^2-b^2}{2b}, 0\right)$

B. $\left(\frac{\sqrt{a^2-b^2}}{2a}, 0\right)$

C. $\left(\frac{a^2+b^2}{2b}, 0\right)$

D. $\left(\frac{\sqrt{a^2+b^2}}{2b}, 0\right)$

Answer: C

Watch Video Solution

71. The points (1, 1), (- 6, 0), (-2, 2). (-2,-8) are

A. concylic

B. collinear

C. vertices of a square

D. none

Answer: A

Watch Video Solution

72. If the points (2, 3), (0, 2), (4, 5) and (0, t) are concyche, then t=

A. 1 or 2

B. 1 or 17

C. 2 or 17

D. 1 or 2 or 17

Answer: C

Watch Video Solution

73. The points (2k, 3k), (1, 0), (0, 1) and (0, 0) lie on a circle for

A. all values of k

B. $0 \leq k \leq 1$

C. $k < 0$

D. k=5/13

Answer: D

Watch Video Solution

74. If $(m_1, 1/m_1), i = 1, 2, 3, 4$ are concyclic points, then the value of $m_1m_2m_3m_4$ is

A. 1

B. -1

C. 0

D. none

Answer: A

Watch Video Solution

75. The equation of the circle passing through the points (4, 1), (6, 5) and having the centre on the line 4x+y- 16 =0 is

A. $x^2 + y^2 - 6x - 8y + 15 = 0$

B. $15\left(x^2 + y^2\right) - 94x + 18y + 55 = 0$

C. $x^2 + y^2 - 4x - 3y = 0$

D. $x^2 + y^2 + 6x - 4y = 0$

Answer: A

Watch Video Solution

76. The equation of the circle having centre on the line 3x +4y =5 and passing through the points (1,-2), (4,-3) is

A. $x^2 + y^2 - 4x - 3y = 0$

B. $x^2 + y^2 + 6 \times + 2y + 5 = 0$

C. $x^2 + y^2 + 6x - 2y + 5 = 0$

D. $x^2 + y^2 - 6x + 2y + 5 = 0$

Answer: D

Watch Video Solution

77. The equation of the circle passing through (2, 0) and (0, 4) and having the minimum radius is

A. $x^2 + y^2 = 20$

B. $x^2 + y^2 - 2x - 4y = 0$

C. $x^2 + y^2 = 4$

D. $x^2 + y^2 = 16$

Answer: B

Watch Video Solution

78. A circle with centre at (2, 4) is such that the line x+y+2 =0 cuts a chord of length 6. The radius of the circle is

A. $\sqrt{11}$

B. $\sqrt{21}$

C. $\sqrt{31}$

D. $\sqrt{41}$

Answer: D

Watch Video Solution

79. The equation of the circle passing through the origin and cuts of intercepts -6 and 4 on the axes as

A. $x^2 + y^2 - 6x - 8y + 15 = 0$

B. $15(x^2 + y^2) - 94x + 18y + 55 = 0$

C. $x^2 + y^2 - 4x - 3y = 0$

D. $x^2 + y^2 + 6x - 4y = 0$

Answer: D

Watch Video Solution

80. The equations of the circles which pass through the origin and makes intercepts of lengths 4 and 8 on the x and y axis respectively, are :

A. $x^2 + y^2 \pm 4x \pm 8y = 0$

B. $x^2 + y^2 \pm 2x \pm 4y = 0$

C. $x^2 + y^2 \pm 8x \pm 16y = 0$

D. $x^2 + y^2 \pm x \pm y = 0$

Answer: A

Watch Video Solution

81. Circles are drawn through the point (2, 0) to cut intercepts of length 5 unit on the X-axis. If their centres lie in the first quadrant, then their equation is

A. $x^2 + y^2 - 9x + 2ky + 14 = 0$

B. $3x^2 + 3y^2 + 27x - 2ky + 42 = 0$

C. $x^2 + y^2 - 9x - 2ky + 42 = 0$

D. $x^2 + y^2 - 2kx - 9y + 14 = 0$

Answer: A

Watch Video Solution

82. The equation to the cicle of radius 5. which pass through the two points on the x-axis which are at a distance of 4 from the origin is

A. $x^2 + y^2 - 6x - 16 = 0$

B. $x^2 + y^2 - 6y - 25 = 0$

C. $x^2 + y^2 + 6y - 16 = 0$

D. none

Answer: C

Watch Video Solution

83. ABCD is a square with side a. If AB and AD are taken as coordiate axes.

Then the equation of the circle circumseribing the square is.

A. $x^2 + y^2 - ax - ay = 0$

B. $x^2 + y^2 + ax + ay = 0$

C. $x^2 + y^2 - 2ax - 2ay = 0$

D. $x^2 + y^2 + 2ax + 2ay = 0$

Answer: A

Watch Video Solution

84. ABCD is a rectangle wih sides AB=p, BC=q,. If AB and AD are taken negative directions of coordinate axes. then the equaton of the circumscribing the rectangle is

A. $x^2 + y^2 + px + qy = 0$

B. $x^2 + y^2 - px - qv = 0$

C. $x^2 + y^2 + 2px + 2qy = 0$

D. $x^2 + y^2 - 2px - 2py = 0$

Answer: A

Watch Video Solution

85. The equation to the circle circumseribing the triangle forced by the lines x-y-2=0, 2x-3y+4=0, 3x-y+6=0 is

A. $x^2 + y^2 - 17x - 19y + 50 = 0$

B. $3\left(x^2 + y^2\right) + 2x - 40y + 20 = 0$

C. $x^2 + y^2 - 24x + 16y - 52 = 0$

D. $x^2 + y^2 + 12x + 12y + 7 = 0$

Answer: C

View Text Solution

86. The equation of the circle circumscribing the triangle formed by x=0, y=0 and $mx + ly = lm$ is

A. $x^2 + y^2 - l^2 + m^2$

B. $x^3 + y^2 + lx + my = 0$

C. $x^3 + y^2 - lx - my = 0$

D. $x^2 + y^2 - lx - my + lm = 0$

Answer: C

Watch Video Solution

87. The circumcentre of the triangle formed by the lines x+y=0, x-y=0 and lx+my=1 is

A. $\left(\frac{1}{l^2+m^2}, \frac{-m}{l^2+m^2}\right)$

B. $\left(\frac{1}{l^2-m^2}, \frac{-m}{l^2-m^2}\right)$

C. $\left(\frac{1}{(l+m)^2}, \frac{-m}{(l-m^2)}\right)$

D. $\left(\frac{1}{(l+m)^2}, \frac{-m}{(l-m)^2}\right)$

Answer: B

Watch Video Solution

88. A rectangle ABCD is inscribed in a circle with a diameter lying along the line 3y=x+10. If A=(-6,7), B=(4,7) then the area of the rectangle is

A. 80 sq. unit

B. 40 sq. unit

C. 160 sq. unit

D. 20 sq. unit

Answer: A

Watch Video Solution

89. If $4y=x+7$ is a diameter of the circumscribing circle of the rectangle ABCD and A(-3,4), B(5,4). then the area of the rectangle.

A. 31 s.n

B. 32 s.n

C. 35 s.n

D. none

Answer: B

Watch Video Solution

90. A circle is inscribed ina n equilateral triangle and a square is inscribed in the circle. The ratio of the area of the triangle to the area of the square is

A. $\sqrt{3}:\sqrt{2}$

B. $\sqrt{3}:1$

C. $3\sqrt{3}:2$

D. $3:\sqrt{2}$

Answer: C

Watch Video Solution

91. A and B are fixed points and P moves such that PA=nPB and $n \neq 1$. The locus of P is

A. straight line

B. pair of straight lines

C. circle

D. none

Answer: C

Watch Video Solution

92. The locus of a point, which moves in such a way that the sum of the squares of its distances from the four sides of a square is consant $(=2c^2)$ is

A. a straight line

B. a circle

C. an ellipse

D. parabola

Answer: B

Watch Video Solution

93. If a point moves so that sum of the square of the perpendiculars from it on the side of an equilateral triangle is consant then its locus is a

A. line

B. circle

C. pair of lines

D. none

Answer: B

Watch Video Solution

94. A square is inscribed in the circle $x^2 + y^2 - 2x + 4y - 3 = 0$ with its sides parallel to the coordinate axes. One vertex of the square is

A. $(1 + \sqrt{2}, -2)$

B. $(1 - \sqrt{2}, -2)$

C. $\left(1, -2+\sqrt{2}\right)$

D. none

Answer: D

Watch Video Solution

95. A square is inscribed in the circle $x^2+y^2-2x+4y-93=0$ with its sides parallel to the coordinate axes. One vertex of the square is

A. (5,8)

B. (5,3)

C. (8,-5)

D. (-1,5)

Answer: B

Watch Video Solution

96. The number of points here the circle $x^2 + y^2 - 4x - 4y = 1$ cuts the sides of the rectangle formed by x=2, x=5, y=-1 and y=5 is

A. 5

B. 1

C. 2

D. 3

Answer: D

Watch Video Solution

97. The shortest distançe from (-2, 14) to the circle $x^2 + y^2 - 6x - 4y - 12 = 0$ is

A. 8

B. 4

C. 2

D. 1

Answer: A

Watch Video Solution

98. The longest distance from (-3, 2) to the circle $x^2 + y^2 - 2x + 2y + 1 = 0$ is

A. 8

B. 4

C. 18

D. 6

Answer: D

Watch Video Solution

99. The nearest point on the circle $x^2 + y^2 - 6x + 4y - 12 = 0$ from $(-5, 4)$ is

A. (1,1)

B. (-1,1)

C. (-1,2)

D. (-2,2)

Answer: B

Watch Video Solution

100. The furthest point the circle $x^2 + y^2 - 4x + 6y - 12 = 0$ from $(-13, 17)$ is

A. (5,-7)

B. (-1,1)

C. (-1,2)

D. (-2,2)

Answer: A

Watch Video Solution

101. The sum of the minimum and maximum distances of the point (4,-3) to the circlex^2 +y^2+4x-10y-7=0

A. 10

B. 12

C. 16

D. 20

Answer: D

Watch Video Solution

102. The least distance of the line 8x-4y+73=0 from the circle $16x^2 + 16y^2 + 48x - 8y - 43 = 0$

A. $\sqrt{5}/2$

B. $2\sqrt{5}$

C. $3\sqrt{5}$

D. $4\sqrt{5}$

Answer: B

Watch Video Solution

103. The locus of the point whose shortest distance from the circle $x^2 - 2x + 6y - 6 = 0$ is equal to its distance from the line x-3=0 is

A. $x^2 + 6y - 4x - 9 = 0$

B. $y^2 - 6y + 4x + 9 = 0$

C. $x^2 - 6y - 4x - 9 = 0$

D. $y^2 + 6y - 4x + 9 = 0$

Answer: D

Watch Video Solution

104. The circle $x^2 + y^2 - 4x - 4y + 4 = 0$ is inscribed in a triangle which has two of its sides stong the coordinate axes. The locus of the circumcentre of the triangle is $x + y - xy + k\left(x^2 + y^2\right)^{1/2} = 0$. Then k=

A. 0

B. 1

C. -1

D. 2

Answer: B

View Text Solution

105. A circle of radius unit is inscribed in a triangle whose two of its sides are along coordinate axes. The locus of the circumcentre of the triangle is

A. $x + y - xy = \sqrt{x^2 + y^2}$

B. $\sqrt{x^2 + y^2} = x + y + xy$

C. $x + y - 2xy + \sqrt{x^2 + y^2} = 0$

D. $\sqrt{x^2 + y^2} = 2xy + x + y$

Answer: C

Watch Video Solution

106. The equation to the side BC of $\triangle ABC$ is $x + 5 = 0$. If (-3, 2) is the orthocentre of $\triangle ABC$. The point where the altitude through A meets the circumcircle of the triangle is.

A. (2,7)

B. (2,-7)

C. (-7,2)

D. (7,-2)

Answer: C

Watch Video Solution

107. Given A=(0,6),B=(4,0),C=(-3,0),D=(0,-2) concylic points, the orthocentre of $\triangle ABC$ is

A. (2,0)

B. (0,-2)

C. (0,2)

D. (2,2)

Answer: C

Watch Video Solution

108. P is a point on the circuncirCle of an. equilateral trIngle ABC of side a. Then $PA^2 + PB^2 + PC^2 =$

A. $4a^2$

B. $3a^2$

C. $2a^2$

D. a^2

Answer: C

Watch Video Solution

109. Let P be a point on the cirele $x^2 + y^2 = 9$, Q a point on the line and the Pendicular bisecior of PQ be the line x-y+1=0. Then the coordinate of P are

A. (3,0)

B. (0,3)

C. (72/25,-21/25)

D. (72/25,21/25)

Answer: A

View Text Solution

110. The equation of the image of the circle $x^2 + y^2 - 6x - 4y + 12 = 0$ by the line mirror x+y-1=0 is

A. $x^2 + y^2 + 2x + 4y + 4 = 0$

B. $x^2 + y^2 - 2x + 4y + 4 = 0$

C. $x^2 + y^2 + 2x + 4y - 4 = 0$

D. $x^2 + y^2 + 2x - 4y + 4 = 0$

Answer: A

Watch Video Solution

Exercise 1B(Circle-Line)

1. The equation of the tangent to the cirele $x^2 + y^2 - 2x - 4y + 3 = 0$ at $(2, 3)is$

A. x+2y-10=0

B. x+y+5=0

C. 3x+2y-13=0

D. 2x+3y-23=0

Answer: B

Watch Video Solution

2. The equation of the tangent at (1, 1) to the circle $2x^2 + 2y^2 - 2x - 5y + 3 = 0$ is

A. 2x+y-1=0

B. 2x-y-1=0

C. x+2y-1=0

D. 2x+y+1=0

Answer: B

Watch Video Solution

3. The equation of the normal to the circle $x^2 + y^2 + 6x + 4y - 3 = 0$ at (1,-2) to is

A. y+1=0

B. y+2=0

C. y+3=0

D. y-2=0

Answer: B

Watch Video Solution

4. The equation to the normal to the circle $x^2 + y^2 - 2x - 2y = 0$ at the point (3,1) on it is

A. x=1

B. y=2

C. y=1

D. y=-1

Answer: C

Watch Video Solution

5. The normal of the circle $(x-2)^2 + (y-1)^2 = 16$ which bisects the chord cut off by the line x-2y-3=0 is

A. 2x+y+3=0

B. 2x+y-4=0

C. 2x+y-5=0

D. none

Answer: C

Watch Video Solution

6. The normal drawn at P(-1, 2) on the circle $x^2 + y^2 - 2x - 2y - 3 = 0$ meets the circle at another point Q. Then the coordinates of Q are

A. (3,0)

B. (-3,0)

C. (2,0)

D. (-2,0)

Answer: A

Watch Video Solution

7. If 3x+4y+k=0 is a tangent to the circle $x^2 + y^2 = 16$ then $k =$

A. ± 20

B. $-1, -5$

C. ± 2

D. 4

Answer: A

Watch Video Solution

8. If the line y=2x+c is a tangent to the circle $x^2 + y^2 = 5$ then a value of c is

A. 2

B. 3

C. 4

D. 5

Answer: D

Watch Video Solution

9. If x+y+k=0 is a tangent to the circle $x^2 + y^2 - 2x - 4y + 3 = 0$ then $k =$

A. ± 20

B. $-1, -5$

C. ± 2

D. 4

Answer: C

Watch Video Solution

10. The line $x\cos\alpha + y\sin\alpha = p$ touches the circle $x^2 + y^2 - 2ax\cos\alpha - 2ay\sin\alpha = 0. thenp =$

A. a

B. 2a

C. $-a$

D. $a/2$

Answer: B

Watch Video Solution

11. The slope m of a tangent through the point (7,1) to the circle $x^2 + y^2 = 25$ satisfies the equation.

A. $12m^2 + 7m - 12 = 0$

B. $12m^2 + 7m + 9 = 0$

C. $12m^2 - 7m - 12 = 0$

D. $9m^2 + 12m + 16 = 0$

Answer: C

Watch Video Solution

12. The equation of the tangent to the circle $x^2 + y^2 + 2x + 2y - 7 = 0$ which makes 45° with the x axis is

A. $y = x\sqrt{3} + 1$

B. $y = x \pm \sqrt{3}$

C. $y = x \pm 3\sqrt{2}$

D. $y = x\sqrt{2} + 3$

Answer: C

Watch Video Solution

13. Equation of the tangent to the circle $x^2 + y^2 = 3$, which is inclined at 60° with the x-axis is

A. $y = \sqrt{3}x + 2\sqrt{3}$

B. $y\sqrt{3} = x + 2\sqrt{3}$

C. $y = -x\sqrt{3} + 4\sqrt{3}$

D. none

Answer: A

Watch Video Solution

14. The radius of the circle which has the lines $x + y - 1 = 0$, $x + y - 9 = 0$ as tengent is

A. $\sqrt{2}$

B. $2\sqrt{2}$

C. $3\sqrt{2}$

D. $4\sqrt{2}$

Answer: B

Watch Video Solution

15. The radius of any circle touching the lines $3x - 4y + 5 = 0, 6x - 8y - 9 = 0$ is

A. 1

B. 23/15

C. 20/19

D. 19/20

Answer: D

Watch Video Solution

16. If the lines 3x+4y-14=0 and 6x+8y+7=0 are both tangents to a circle, then its radius is

A. 7

B. $7/2$

C. $7/4$

D. $7/6$

Answer: C

Watch Video Solution

17. How many circles can be drawn each touching all the three lines x+y=1, x+1=y, 7x-y=6

A. 1

B. 2

C. 3

D. 4

Answer: D

Watch Video Solution

18. The number of circles that touches all the three lines $x+y-1=0$, $x-y-1=0$ and $y+1=0$ is

A. 2

B. 3

C. 4

D. 1

Answer: C

Watch Video Solution

19. If the equatio of one tangent to the circle with centre (2,-1) from the origin is $3x+y=0$, then the equation of the other tangent through the origin is

A. $3x-y=0$

B. $x+3y=0$

C. $x-3y=0$

D. $x+2y=0$

Answer: C

Watch Video Solution

20. If $y=3x$ is a tangent to a circle with centre (1,1) then the other tangent drawn through (0,0) to the circle is

A. $3y=x$

B. $y=-3x$

C. $y=2x$

D. $y=-2x$

Answer: A

Watch Video Solution

21. The equation of the tangents to the circle $x^2 + y^2 - 4x - 6y - 12 = 0$ and parallel to 4x-3y=1 are

A. 4x+3y+14=0, 4x+3y+16=0

B. 4x-2y-24=0, 4x-3y+26=0

C. x-y-14=0, x-y+16=0

D. 4x-3y+34=0, 4x-3y+16=0

Answer: B

Watch Video Solution

22. The equation of the tangent to the circle $x^2 + y^2 + 8x - 4y - 5 = 0$ and perpendicular to 2x+3y+5=0 are

A. $2x + 3y + 2 \pm 5\sqrt{13} = 0$

B. $2x + 3y + 2 + 2\sqrt{13} = 0$

C. $x + y + 12 - 3\sqrt{13} = 0$

D. $3x - 2y + 16 \pm 5\sqrt{13} = 0$

Answer: D

Watch Video Solution

23. The equation of the tangents to the circle $x^2 + y^2 - 2x + 8y - 23 = 0$ and having slope 3 are

A. $x - y + 13 = 0, x - y - 27 = 0$

B. 3x+3y+33=0, 3x+y-27=0

C. 3x-y+23=0, 3x-y-37=0

D. 3x-y+13=0, 3x-y-27=0

Answer: D

Watch Video Solution

24. The equation of the tangent to the circle $x^2 + y^2 = 16$ which are inclined at an angle of 60° to the x-axis is

A. $y = \sqrt{3}x \pm 8$

B. $x = \sqrt{3}x \pm 8$

C. $2y = \sqrt{3}x - 8$

D. $2x = \sqrt{3}x - 8$

Answer: A

Watch Video Solution

25. The equation of the tangent to the circle $x^2 + y^2 + 4x - 4y + 4 = 0$ which make equal intercepts on the positive coordinates, is

A. $x + y = 2$

B. $x + y = \sqrt{2}$

C. $x + y = 2\sqrt{2}$

D. none

Answer: C

Watch Video Solution

26. $x^2 + y^2 - 4x - 6y + 9 = 0$ and $(x+3)^2 + (y+2)^2 = 25$ are two circles. The lines x=2 is a

A. tangent for both

B. diameter for both

C. tangent to the first and diameter of the sector

D. diameter of first and tangent to second

Answer: D

Watch Video Solution

27. P(-9,-1) is a point on the circle $x^2 + y^2 + 4x + 8y - 38 = 0$. The equation to the tangent at the other end of the diameter thorugh P is

A. 7x-3y=60

B. 7x+3yt=56

C. 7x-3y=56

D. 7x+3y=60

Answer: C

Watch Video Solution

28. The area of the triangle formed with the coordinate axes and the tangent drawn at the point (-12,5) on the circle $x^2 + y^2 = 169$ is

A. $\left(\frac{625}{24}\right)$

B. $\left(\frac{28561}{120}\right)$

C. $\frac{225}{23}$

D. $\frac{8561}{20}$

Answer: B

Watch Video Solution

29. The equations of the tangents to the circles $x^2 + y^2 = a^2$ which makes with axes a triangle af area a^2 is

A. $y = \pm x \pm 2a$

B. $y = \pm x \pm \sqrt{3}a$

C. $y = \pm x \pm a$

D. $y = \pm x \pm a\sqrt{2}$

Answer: D

Watch Video Solution

30. The area of triangle formed by the positive x-axis and the tangent and the normal at $(1, \sqrt{3})$ to the circle $x^2 + y^2 = 4$ is

A. $3\sqrt{2}$

B. $2\sqrt{3}$

C. $5\sqrt{2}$

D. none

Answer: B

Watch Video Solution

31. Let A be the centre of the circle $x^2 + y^2 - 2x - 4y - 20 = 0$. Suppose that the tangent at the points B(1,7) and D(4,-2) on the circle meet at the point C. The area of the quadrilateral ABCD is

A. 75 sq. unit

B. 145 sq. unit

C. 150 sq. unit

D. 50 sq. unit

Answer: A

Watch Video Solution

32. If a tangnet drawn from the point (4,0) to the circle $x^2 + y^2 = 8$ touches it at a point A in the first quadrant, then the coordinates of another point B on the circle such that AB=4 are

A. (2,-2) or (-2,2)

B. (1,-2) or (-2,1)

C. (-1,1) or (1,-1)

D. (3,-2) or (-3,2)

Answer: A

Watch Video Solution

33. The tangent at (3,4), (4,-3) to the circle $x^2 + y^2 = 25$ are

A. coincide

B. parallel

C. perpendicular

D. at an angle of 45°

Answer: C

Watch Video Solution

34. If the tangents at (5,12) and (12,-5) to a circle are perpendicular to each other then the radius of the circle is

A. 12

B. 5

C. 13

D. none

Answer: C

Watch Video Solution

35. The locus of the point of intersection of two perpendicular tangents to the circle $x^2 + y^2 = a^2 is$

A. $x^2 + y^2 = a^2/2$

B. $x^2 + y^2 = a^2/3$

C. $x^2 + y^2 = 2a^2$

D. $x^2 + y^2 = 3a^2$

Answer: C

Watch Video Solution

36. The locus of the point of intersection of the perpendicular tangents to the circle $x^2 + y^2 = a^2$is

A. $x^2 + y^2 - 4x + 6y - 12 = 0$

B. $x^2 + y^2 - 4x + 6y - 17 = 0$

C. $x^2 + y^2 - 4x + 6y - 37 = 0$

D. $x^2 + y^2 - 4x + 6y + 13 = 0$

Answer: C

View Text Solution

37. The locus of the point of intersection of the perpendicular tangents to the circle $x^2 + y^2 = a^2, x^2 + y^2 = b$ is

A. $x^2 + y^2 = a^2 + b^2$

B. $x^2 + y^2 = a^2 - b^2$

C. $x^2 + y^2 = (a + b)^2$

D. $x^2 + y^2 = (a - b)^2$

Answer: A

Watch Video Solution

38. If the tangent from a point P to the circle $x^2 + y^2 = 1$ is perpendicular to the tangent from P to the circle $x^2 + y^2 = 3$, then the locus of P is

A. a circle of radius

B. a circle of radius

C. a circle of radius

D. none

Answer: A

Watch Video Solution

39. The locus of the point of intersection of two tangents drawn to the circle $x^2 + y^2 = a^2$ which makes a constant angle α to each other is

A. $\left(x^2 + y^2 - a^2\right)^2 = 4a^2\left(x^2 + y^2 + a^2\right)\tan^2\alpha$

B. $\left(x^2 + y^2 - a^2\right)^2 = 4a^2\left(x^2 + y^2 + a^2\right)\cot^2\alpha$

C. $\left(x^2 + y^2 - 2a^2\right)^2 = 4a^2\left(x^2 + y^2 - a^2\right)\cot^2\alpha$

D. $\left(x^2 + y^2 - 2a^2\right)^2 = 4a^2\left(x^2 + y^2 - a^2\right)$

Answer: C

View Text Solution

40. The locus of the feet of the perpendicular drawn from the point (a,0) on tangent to the circle $x^2 + y^2 = a^2$ is

A. $\left(x^2 + y^2 + ax\right)^2 = a^2\left[y^2 + (x - a)^2\right]$

B. $\left(x^2 + y^2 - ax\right)^2 = a^2\left[y^2 + (x - a)^2\right]$

C. $a^2(x + y)^2 - (ax)^2 = a^2\left[(x - y)^2 + a^2\right]$

D. none

Answer: B

Watch Video Solution

41. The locus of the middle points of portions of the tangents to the circle $x^2 + y^2 = a^2$ terminated by the axes is

A. $\frac{1}{x^2} + \frac{1}{y^2} = \frac{4}{a^2}$

B. $\frac{1}{x^2} + \frac{1}{y^2} = \frac{2}{a^2}$

C. $\frac{1}{x^2} - \frac{1}{y^2} = \frac{4}{a^2}$

D. $\frac{1}{x^2} + \frac{1}{y^2} = \frac{1}{a^2}$

Answer: A

Watch Video Solution

42. If $4t^2 - 5m(2) + 6l + 1 = 0$, then the line lx+my+1=0 touches the circle

A. $x^2 + y^2 + 6x - 4 = 0$

B. $x^2 + y^2 - 6x + 4 = 0$

C. $x^2 + y^2 + 5x + 4 = 0$

D. $x^2 + y^2 - 2x + 5 = 0$

Answer: B

Watch Video Solution

43. The locus of the point (l,m) if the line lx+my=1 touches the circles $x^2 + y^2 = a^2$ is

A. $x^2 + y^2 = 2a^2$

B. $2x^2 + 2y^2 = a^2$

C. $a^2(x^2 + y^2) = 1$

D. $a^2(x^2+y^2)=2$

Answer: C

Watch Video Solution

44. A tangent to the circle $x^2+y^2=4$ meets the coordinate axes at P and Q. The locus of midpoint of PQ is

A. $\frac{1}{x^2}+\frac{1}{y^2}=1$

B. $\frac{1}{x^2}+\frac{1}{y^2}=\frac{1}{4}$

C. $\frac{1}{x^2}-\frac{1}{y^2}=\frac{1}{2}$

D. none

Answer: A

Watch Video Solution

45. The tangents to $x^2 + y^2 = a^2$ having inclinations α and β intersect at P. If $\cot\alpha + \cot\beta = 0$, then the locus of P is

A. x+y=0

B. x-y=0

C. xy=0

D. none

Answer: C

Watch Video Solution

46. A line segment AM=a moves in the XOY plane such that AM is parallel to the X-axis. If A moves along the circle $x^2 + y^2 = a^2$, then the locus of M is

A. $x^2 + y^2 = 4a^2$

B. $x^2 + y^2 = 2ax$

C. $x^2 + y^2 = 2ay$

D. $x^2 + y^2 = 2ax + 2ay$

Answer: B

Watch Video Solution

47. The circle $4x^2 + 4y^2 - 12x - 12y + 9 = 0$

A. touches both the axes

B. touches the x-axis only

C. touches the y-axis only

D. does not touch the axes

Answer: A

Watch Video Solution

48. If $x^2 + y^2 - 4x - 6y + k = 0$ touches x-axis then k=

A. ± 20

B. $-1, \ -5$

C. ± 2

D. 4

Answer: D

Watch Video Solution

49. If $x^2 + y^2 + 6x + 2ky + 25 = 0$ to touch y-axis then k=

A. ± 20

B. $+5, \ -5$

C. ± 2

D. 4

Answer: B

Watch Video Solution

50. Find the equation of the circle with centre

$(-3, 4)$ and touching $y-$ axis.

A. $x^2 + y^2 - 4x - 6y + 4 = 0$

B. $x^2 + y^2 + 6x - 8y + 16 = 0$

C. $x^2 + y^2 - 8x - 6y + 21 = 0$

D. $x^2 + y^2 - 24x - 10y + 144 = 0$

Answer: A

Watch Video Solution

51. Find the equation of the circle with centre

$(-3, 4)$ and touching $y-$ axis.

A. $x^2 + y^2 - 4x - 6y + 4 = 0$

B. $x^2 + y^2 + 6x - 8y + 16 = 0$

C. $x^2 + y^2 - 8x - 6y + 21 = 0$

D. $x^2 + y^2 - 24x - 10y + 144 = 0$

Answer: B

Watch Video Solution

52. The equation of a circle with centre (4,1) and having 3x+4y-1=0 as tangent is

A. $x^2 + y^2 - 8x - 2y - 8 = 0$

B. $x^2 + y^2 - 8x - 2y + 8 = 0$

C. $x^2 + y^2 - 8x + 2y + 8 = 0$

D. $x^2 + y^2 - 8x - 2y + 4 = 0$

Answer: B

Watch Video Solution

53. The equation of the circle touching both axes, lying in the first quadrant and having the radius 3 is

A. $x^2 + y^2 - 6x - 6y + 9 = 0$

B. $x^2 + y^2 + 10x - 10y + 25 = 0$

C. $x^2 + y^2 + 2x + 2y + 1 = 0$

D. $x^2 + y^2 - 4x + 4y + 4 = 0$

Answer: A

Watch Video Solution

54. The equation of the circle of radius 3 that lies in the fourth quadrant and touching the lines x=0 and y=0 is

A. $x^2 + y^2 - 6x + 6y + 9 = 0$

B. $x^2 + y^2 - 6x - 6y + 9 = 0$

C. $x^2 + y^2 + 6x - 6y + 9 = 0$

D. $x^2 + y^2 + 6x + 6y + 9 = 0$

Answer: A

Watch Video Solution

55. The equation of the cirlce touching both the axes lying in the third quadrant and having the radius 3 is

A. $x^2 + y^2 - 6x - 6y + 9 = 0$

B. $x^2 + y^2 + 10x - 10y + 25 = 0$

C. $x^2 + y^2 + 6x - 6y + 9 = 0$

D. $x^2 + y^2 + 6x + 6y + 9 = 0$

Answer: D

Watch Video Solution

56. The equation of the circle passing through (2,1) and touching the coordinate axes is

A. $x^2 + y^2 - 2x - 2y + 1 = 0$

B. $x^2 + y^2 + 2x + 2y + 1 = 0$

C. $x^2 + y^2 - 2x - 2y - 1 = 0$

D. $x^2 + y^2 + 2x + 2y - 1 = 0$

Answer: A

Watch Video Solution

57. The equation of the circles touching the coordinate axes and passing through the point (k,2k) where $k > 0$ is

A.

$2x^2 + 2y^2 + 12kx - 12ky + k^2 = 0, 4x^2 + 4y^2 - 10kx - 10ky + 25k$

B.

$$x^2 + y^2 - kx - 2ky + k^2 = 0, x^2 + y^2 - 10kx - 10ky + 25k^2 = 0$$

C.

$$x^2 + y^2 + 2kx + 2ky + k^2 = 0, x^2 + y^2 + 10kx + 10ky + 25k^2 = 0$$

D.

$$x^2 - y^2 - 2kx - 2ky - k^2 = 0, x^2 - y^2 - 10lx - 10ky - 25k^2 = 0$$

Answer: B

Watch Video Solution

58. The equation of the circles touching the axes at (5,0) and (0,5) is

A. $x^2 + y^2 - 5x - 10y + 7 = 0$

B. $2\left(x^2 + y^2\right) - 5x - 5y + 7 = 0$

C. $x^2 + y^2 - 10x - 10y + 25 = 0$

D. none

Answer: C

Watch Video Solution

59. The equation of the cirles touch the x-axis (3,0) and make an intercept 8 units on y-axis is

A. $x^2 + y^2 + y^2 + 10x - 8y - 16 = 0$

B. $x^2 + y^2 - 6x \pm 10y + 9 = 0$

C. $x^2 + y^2 - 10x \pm 26y + 25 = 0$

D. $x^2 + y^2 \pm 26 + 24y + 144 = 0$

Answer: B

Watch Video Solution

60. The centre of the circle touching the y-axis at (0,3) and making an intercept 2 unit on positive x-axis is

A. $(10, \sqrt{3})$

B. $(\sqrt{3}, 10)$

C. $(\sqrt{10}, 3)$

D. $(3, \sqrt{10})$

Answer: C

Watch Video Solution

61. Equation of the circle touching the y-axis at $(0, \sqrt{3})$ and cuts the x-axis in the points (-1,0) and (-3,0) is

A. $x^2 + y^2 + 4x - 2y\sqrt{3} + 3 = 0$

B. $x^2 + y^2 - 4x + 2y\sqrt{3} = 0$

C. $x^2 + y^2 = 0$

D. none

Answer: A

Watch Video Solution

62. The equation of the circles which touch the x-axis at the origin and the line 4x-3y+24=0

A. $x^2 + y^2 - 6y = 0, x^2 + y^2 + 24y = 0$

B. $x^2 + y^2 + 2y = 0, x^2 + y^2 - 18y = 0$

C. $x^2 + y^2 + 18x = 0, x^2 + y^2 - 8x = 0$

D. $x^2 + y^2 + 4x = 0, x^2 + y^2 - 16x = 0$

Answer: A

Watch Video Solution

63. The equation of the circles which touch the y-axis at the origin and the line 5x+12y-72=0 is

A. $x^2 + y^2 - 6y = 0, x^2 + y^2 + 24y = 0$

B. $x^2 + y^2 + 2y = 0, x^2 + y^2 - 18y = 0$

C. $x^2 + y^2 + 18x = 0, x^2 + y^2 - 8x = 0$

D. $x^2 + y^2 + 4x = 0, x^2 + y^2 - 16x = 0$

Answer: C

Watch Video Solution

64. The equation of the circle touching the y-axis at the origin and passing through (b,c) is

A. $b(x^2 + y^2) = x(b^2 - c^2)$

B. $b(x^2 + y^2) = y(b^2 + c^2)$

C. $b(x^2 + y^2) = x(b^2 + c^2)$

D. $b(x^2 + y^2) = y(b^2 - c^2)$

Answer: C

Watch Video Solution

65. The equation of the cirles touching the coordinate axes and the line x+2=0

A. $x^2 + y^2 + 2x + 2y - 1 = 0$

B. $x^2 + y^2 - 2x + 2y + 1 = 0$

C. $x^2 + y^2 + 2x + 2y + 1 = 0$

D. $x^2 + y^2 + 2x - 2y - 1 = 0$

Answer: C

Watch Video Solution

66. The equation of a circle touching the coordinate axes and the line $3x - 4y = 12$ is

A. $x^2 + y^2 - 6x - 6y + 9 = 0$

B. $x^2 + y^2 - 6x - 6y + 9 = 0$

C. $x^2 + y^2 + 6x - 6y + 9 = 0$

D. $x^2 + y^2 + 6x + 6y + 9 = 0$

Answer: B

Watch Video Solution

67. The equation of the circle in the first quadrant which touch the co-ordinate axes and the line $3x + 4y = 12$ is

A. $x^2 + y^2 - 6x - 6y + 9 = 0$

B. $x^2 + y^2 - 6x - 6y + 9 = 0$

C. $x^2 + y^2 + 6x + 6y + 19 = 0$

D. $x^2 + y^2 = 2x = 2y + 1 = 0$

Answer: D

Watch Video Solution

68. Theq equation of the circle which touches the lines x=0, y=0 and x=c is

A. $x^2 + y^2 = cx - cy + c^2 = 0$

B. $x^2 + y^2 - 2cx - 2cy + c^2 = 0$

C. $x^2 + y^2 + cx + cy + c^2/4 = 0$

D. $x^2 + y^2 - cx - cy + c^2/4 = 0$

Answer: D

Watch Video Solution

69. The circle passing through (1,-2) and touching the axis of x at (3,0) also passes through the point:

A. (5,-2)

B. (-2,5)

C. (-5,2)

D. (2,-5)

Answer: A

Watch Video Solution

70. ABCD is a square 2a unit. Taking AB and AD as axes of coordinates, the equation to the circle which touches the sides of the square is

A. $x^2 + y^2 + ax + ay + a^2 = 0$

B. $x^2 + y^2 + 2ax + 2ay + a^2 = 0$

C. $x^2 + y^2 - ax - ay + a^2 = 0$

D. $x^2 + y^2 - 2ax - 2ay + a^2 = 0$

Answer: D

Watch Video Solution

71. The equation of the circle whose centre lies in the first quadrant and which touches the coordinate axes and the line

$(x/3)+(y/4)=1$ is $x^2+y^2-2cx-2cy+c^2=0$ then c=

A. 4

B. 2

C. 3

D. 6

Answer: D

Watch Video Solution

72. The equation of the circle having centre on the line x+y=1 and touching the lines 3x-4y+2=0, 4x+3y+7=0

A. $x^2+y^2+2x+4y+24/25=0$

B. $x^2+y^2-2x-4y-44/25=0$

C. $2x^2+2y^2+x-y+14/25=0$

D. $x^2+y^2+2x-4y+44/25=0$

Answer: D

Watch Video Solution

73. The equation to the circles which touch the lines 3x-4y+1=0, 4x+3y-7=0 and pass through (2,3) are

A. $x^2 + y^2 - 4x - 16y + 43 = 0, 5x^2 + 5y^2 - 12 - 24y + 31 = 0$

B. $x^2 + y^2 + 4x - 16y - 43 + 0, 5x^2 + y^2 - 12x - 24y + 31 = 0$

C. $x^2 + y^2 - 4x - 16y + 43 = 0, 5x^2 + 5y^2 + 12x + 24y + 31 = 0$

D. $x^2 + y^2 + 4x + 16y - 43 = 0, 5x^2 + 5y^2 + 12x + 24y + 31 = 0$

Answer: A

View Text Solution

74. The equation of the circle which has a radius 5 and tangent as the line 3x-4y+5=0 at (1,2) is

A. $x^2 + y^2 + 2x - 8y + 4 = 0, x^2 + y^2 - 6x + 4y = 0$

B. $x^2 + y^2 + 4x - 12y + 15 = 0, x^2 + y^2 - 8x + 4y - 5 = 0$

C.

$$2x^2 + y^2 - 14x - 36y + 43 = 0, 5x^2 + 5y^2 + 12x + 24y + 31 = 0$$

D.

Answer: B

Watch Video Solution

75. The equation of the circle passing through the point (1,-2) and having its centre on the line 2x-y-14=0 and touching the line 4x+3y-23=0 is

A. $x^2 + y^2 + 8x + 12y + 27 = 0$

B. $x^2 + y^2 - 12y + 27 = 0$

C. $x^2 + y^2 - 8x - 12y + 27 = 0$

D. $x^2 + y^2 - 8x + 12y + 27 = 0$

Answer: D

Watch Video Solution

76. The equation of the circles which touch the y-axis at a distance 4from the origin and make an intercept 6 on the x-axis is

A. $2x^2 + 2y^2 \pm 40 \pm 8y + 56 = 0$

B. $2x^2 + 2y^2 - 10x \pm 18y + 36 = 0$

C. $11x^2 + 11y^2 - 10x - 8y - 16 = 0$

D. $x^2 + y^2 \pm 10x \pm 8y, 16 = 0$

Answer: D

Watch Video Solution

77. Consider a family of circles which are passing through the point (-1,1) and are tangent to x-axis. If (h,k) are the co-ordinates of the centre of the

circles, then the set of values of k is given by the internal.

A. $0 < k < \frac{1}{2}$

B. $k \geq \frac{1}{2}$

C. $-\frac{1}{2} \leq k \leq \frac{1}{2}$

D. $k \leq \frac{1}{2}$

Answer: B

Watch Video Solution

78. A variable circle passes through the fixed point (2,0) and touches the y-axis. Then the locus of its centre is

A. a parabola

B. a circle

C. an ellipse

D. a hyperbola

Answer: A

Watch Video Solution

79. If the line x+3y=0 is tangent at (0,0) to the circle of radius 1, then the centre of one such circle is

A. (3,0)

B. $\left(\frac{-1}{\sqrt{10}}, \frac{3}{\sqrt{10}}\right.$

C. $\left(\frac{3}{\sqrt{10}}, \frac{-3}{\sqrt{10}}\right)$

D. $\left(\frac{1}{\sqrt{10}}, \frac{3}{\sqrt{10}}\right)$

Answer: D

Watch Video Solution

80. O is the origin and OA, OB are a pair of tangents to the $x^2 + y^2 + 2gx + 2fy + c = 0, c > 0$, then the equation to the circum

circle of $\triangle OAB$ is

A. $x^2 + y^2 - gx - fy = 0$

B. $x^2 + y^2 + gx + fy = 0$

C. $x^2 + y^2 - gx = 0$

D. $x^2 + y^2 + fy = 0$

Answer: B

Watch Video Solution

81. If O is the origin OP, OQ are the tangent to the circle $x^2 + y^2 + 2gx + 2fy + c = 0$ then the circumcentre of the $\triangle OPQ$ is

A. (-g,-f)

B. (-f,-g)

C. (-g/2,-f/2)

D. (-f/2,-g/2)

Answer: C

Watch Video Solution

82. Tangents PA and PB are drawn from P(a,b) to the circle $x^2 + y^2 = r^2$.

The equation to the circum circle of $\triangle PAB$ is

A. $x^2 + y^2 - x - y = 0$

B. $x^2 + y^2 - ax - by = 0$

C. $x^2 + y^2 - 2ax - 2by = 0$

D. none

Answer: B

Watch Video Solution

83. A circle touches x-axis and cuts off a constant length 2l from the y-axis.

The locus of its centre of

A. $x^2 + y^2 = l^2$

B. $x^2 + y^2 = 2l^2$

C. $x^2 + y^2 = 3l^2$

D. $x^2 - y^2 + l^2 = 0$

Answer: D

Watch Video Solution

84. A circle passes through P(a,b) and touches the x-axis. The locus of the other end of diameter of the circle through P is

A. $(x - a)^2 = 4by$

B. $(y - b)^2 = 4ac$

C. $y^2 = 4b(x - a)$

D. none

Answer: A

Watch Video Solution

85. A rod PQ of length 2a sides with its ends on the axes the locus of the circumcentre of $\triangle OPQ$ is

A. $x^2 + y^2 = 2a^2$

B. $x^2 + y^2 = 4a^2$

C. $x^2 + y^2 = 3a^2$

D. $x^2 + y^2 = a^2$

Answer: D

Watch Video Solution

86. If O=(0,0), A=(1,0) and $B = \left(1/2, \sqrt{3}/2\right)$ then the centre of the circle for which the lines OA, Ab and BO are the tangents, is

A. $\left(\frac{1}{2}, \frac{1}{2\sqrt{3}}\right)$

B. $\left(\frac{1}{2}, \frac{1}{4}\right)$

C. $\left(\frac{1}{2}, \frac{-1}{\sqrt{3}}\right)$

D. $\left(\frac{1}{2}, \frac{\sqrt{3}}{4}\right)$

Answer: A

Watch Video Solution

87. If a chord of the circle $x^2 + y^2 = 8$ makes equal intercepts of length a on the coordinate axes, then $|a| <$

A. 2

B. $\sqrt{2}$

C. 4

D. $\sqrt{8}$

Answer: C

Watch Video Solution

88. The circle $x^2 + y^2 - 4x + 4y - 1 = 0$ cuts the positive coordinate axes in A and B respectively. The equaion to the diameter of the circle perpendicular to the chord AB is

A. $5y + 20 = \left(90 + 4\sqrt{5}\right)(x + 2)$

B. $2y + 12 = \left(19 + 14\sqrt{5}\right)(x - 2)$

C. $10y + 121 = \left(9 + 4\sqrt{5}\right)(x - 2)$

D. $y + 2 = \left(9 + 4\sqrt{5}\right)(x - 2)$

Answer: D

Watch Video Solution

89. The interval in which the value of λ should lie if the line $3x - 4y = \lambda$ cuts the circle $x^2 + y^2 - 4x - 8y = 5$ in real points is

A. (15,35)

B. (35,15)

C. (-35,15)

D. [-15,35]

Answer: C

Watch Video Solution

90. The line x+y=1 cuts the coordinate axes at P and Q and a line perpendicular to it meet the axes R and S. The equation to the locus of the intersection of lines PS and QR is

A. $x^2 + y^2 = 1$

B. $x^2 + y^2 - 2x - 2y = 0$

C. $x^2 + y^2 - x - y = 0$

D. none

Answer: C

Watch Video Solution

91. Let x(x-a) + y (y-1) =0 be a circle. If two chords from (a,1) bisected by X-axis are drawn to the circle then the condition is

A. $a^2 = 8$

B. $a^2 < 8$

C. $a^2 > 8$

D. none

Answer: C

Watch Video Solution

92. If two distinct chords, drawn from the point (p,q) on the circle $x^2 + y^2 - px - qy = 0 (\text{where pq} \neq 0)$ are bisected by the x-axis then

A. $p^2 = q^2$

B. $p^2 = 8q^2$

C. $p^2 < 8q^2$

D. $p^2 > 8q^2$

Answer: D

Watch Video Solution

93. The point of contact of the line 3x-4y-25=0 with the circle $x^2 + y^2 = 25$ is

A. (1,-2)

B. (3,-4)

C. (1,3)

D. (-1,2)

Answer: B

Watch Video Solution

94. Show that $x + y + 1 = 0$ touches the circle

$x^2 + y^2 - 3x + 7y14 = 0$ and find its

point of contact.

A. (1,0)

B. (2,-3)

C. (5,2)

D. (-1,0)

Answer: B

Watch Video Solution

95. The piont where the line 4x - 3y + 7 = 0 touches the circle $x^2 + y^2 - 6x + 4y - 12 = 0$ is

A. (1,1)

B. (1,-1)

C. (-1,1)

D. (-1,-1)

Answer: C

Watch Video Solution

96. If the line $y = mx + a\sqrt{1+m^2}$ touches the circle $x^2 + y^2 = a^2$, then the point of contact is

A. $\left(-\frac{am}{\sqrt{1+m^2}}, \frac{a}{\sqrt{1+m^2}}\right)$

B. $\left(\frac{am}{\sqrt{1+m^2}}, \frac{a}{\sqrt{1+m^2}}\right)$

C. $\left(-\frac{am}{\sqrt{1+m^2}}, \frac{a}{\sqrt{1+m^2}}\right)$

D. $\left(-\frac{m}{\sqrt{1+m^2}}, \frac{a}{\sqrt{1+m^2}}\right)$

Answer: A

Watch Video Solution

97. If the tangent to the circle $x^2 + y^2 = 5$ at (1,-2) also touches the circle $x^2 + y^2 - 8x + 6y + 20 = 0$ then the point of contac tis

A. (1,0)

B. (3,-1)

C. (5,2)

D. (-1,0)

Answer: B

Watch Video Solution

98. The line $y = x + a\sqrt{2}$ touches the circle $x^2 + y^2 = a^2$ at P. The coordinate of P are

A. (a, a)

B. $(a/2, a/2)$

C. $(a/\sqrt{2}, a/\sqrt{2})$

D. $(-a/\sqrt{2}, a/\sqrt{2})$

Answer: D

Watch Video Solution

99. The length of the tangent from (6,8) to the circle $x^2 + y^2 = 4$ is

A. $\sqrt{6}$

B. $2\sqrt{6}$

C. $4\sqrt{6}$

D. $5\sqrt{6}$

Answer: C

Watch Video Solution

100. Find the length of the tangent form

$(1, 3)$ to the circle $x^2 + y^2 - 2x + 4y - 11 = 0$.

A. 1

B. 2

C. 3

D. 4

Answer: C

Watch Video Solution

101. The length of the tangent from (0,0) to the circle $2x^2 + 2y^2 + x - y + 5 = 0$ is

A. $\sqrt{5}$

B. $\sqrt{5}/2$

C. $\sqrt{2}$

D. $\sqrt{5/2}$

Answer: D

Watch Video Solution

102. The length of the tangent from to the circle $x^2 + y^2 + 2gx + 2fy + c = 0$ to the circle $x^2 + y^2 + 2gx + 2fy + c' = 0$ is

A. $\sqrt{c - c'}$

B. $\sqrt{c + c}$

C. $\sqrt{c' - c}$

D. c-c'

Answer: C

Watch Video Solution

103. The length of the tangent from a point on the circle $x^2 + y^2 + 4x - 6y - 12 = 0$ to the circle $x^2 + y^2 + 4x - 6y + 4 = 0$ is

A. 4

B. 12

C. 16

D. 8

Answer: A

Watch Video Solution

104. The length of the tangent from the point (-1,1) to the circle $x^2 + y^2 - 4x + k = 0$ equal to 2 then k=

A. 1

B. 2

C. -2

D. -5

Answer: C

Watch Video Solution

105. If the length of the tangent from (2,3) to circle $x^2 + y^2 + 6x + 2ky - 6 = 0$ is equal to 7.

A. 2

B. 4

C. 5

D. 7

Answer: C

Watch Video Solution

106. If the length of the tangent from two points A,B to a circle are 6,7 respectively. If A,B are conjugate points then AB=

A. 5

B. $\sqrt{85}$

C. $\sqrt{85}/2$

D. none

Answer: B

Watch Video Solution

107. If theline y=x touches the circle $x^2 + y^2 + 2gx + 2fy + c = 0$ at P where $OP = 6\sqrt{2}$ then c=

A. 36

B. 144

C. 72

D. 100

Answer: C

Watch Video Solution

108. A circle S=0 with radius $\sqrt{2}$ touches the line x+y-2=0 at (1,1). Then the length of the tangent drawn from the point (1,2) to S=0 is

A. 1

B. $\sqrt{2}$

C. $\sqrt{3}$

D. 2

Answer: C

Watch Video Solution

109. If the length of the tangent from (h,k) to the circle $x^2 + y^2 = 16$ is twice the length of the tangent from the same point to the circle $x^2 + y^2 + 2x + 2y = 0$, then

A. $h^2 + k^2 + 4h + 4k + 16 = 0$

B. $h^2 + k^2 + 3h + 3k = 0$

C. $3h^2 + 3k^2 + 8h + 8k + 16 = 0$

D. $3h^2 + 3k^2 + 4h + 4k + 16 = 0$

Answer: C

Watch Video Solution

110. If the length of the tangent from (1,2) to the circle $x^2 + y^2 + x + y - 4 = 0$ and $3x^2 + 3y^2 - x - y - \lambda = 0$ are in the ratio 4:3 then $\lambda =$

A. 23/4

B. 39/4

C. 17/4

D. 19/4

Answer: B

Watch Video Solution

111. If the length of the tangents from any point on the circle $15x^2 + 15y^2 - 48x + 64y = 0$ to the two circles $5x^2 + 5y^2 - 24x + 32y + 75 = 0, 5x^2 + 5y^2 - 48x + 64y + 300 = 0$ are in the ratio

A. $1:2$

B. $2:3$

C. $3:4$

D. none

Answer: A

Watch Video Solution

112. If the square of the length of the tangents from a point P to the circles $x^2 + y^2 = a^2, x^2 + y^2 = b^2, x^2 + y^2 = c^2$ are in A.P. then a^2, b^2, c^2 are in

A. A.P.

B. G.P.

C. H.P.

D. A.G.P.

Answer: A

Watch Video Solution

113. The area of the quadrilateral formed by the tangents from the point (4,5) to the circle $x^2 + y^2 - 4x - 2y - 11 = 0$ with a pair of the radii joining the points of contact of these tangents is

A. 4

B. 6

C. 8

D. 10

Answer: C

Watch Video Solution

114. If OA and OB are the tangent from the origin to the circle $x^2 + y^2 + 2gx + 2fy + c = 0$ and C is the centre of the circle then the area of the quadrilateral OCAB is

A. $\sqrt{g^2 + f^2 - c}$

B. $\sqrt{c(g^2+f^2-c)}$

C. $\frac{\sqrt{g^2+f^2-c}}{c}$

D. $\frac{\sqrt{g^2+f^2-c}}{2}$

Answer: B

Watch Video Solution

115. If the distances from the origin to the centres of three circles $x^2+y^2-2kix=c^2, (i=1,2,3)$ are in G.P, then the length of the tangents drawn to them from any point on the circle $x^2+y^2=c^2$ are in

A. A.P.

B. G.P.

C. H.P.

D. none

Answer: B

Watch Video Solution

116. The equation to the circle which is such that the lengths of the tangents to it from the points (1,0), (2,0) and (3,2) are $1, \sqrt{7}, \sqrt{2}$ respectively is

A. $2x^2 + 2y^2 + 6x + 17y + 6 = 0$

B. $2x^2 + 2y^2 + 6x - 17y - 6 = 0$

C. $3x^2 + y^2 + 6x + 15y + 5 = 0$

D. none

Answer: B

Watch Video Solution

117. If the length of the tangent from (f,g) to the circle $x^2 + y^2 = 6$ be twice the length of the tangent from the same point to the circle $x^2 + y^2 + 3x + 3y = 0$, then

A. $f^2 + g^2 + 4f + 4g + 2 = 0$

B. $f^2 - g^2 + 4f - 4g + 2 = 0$

C. $f^2 - g^2 + 4g + 2 = 0$

D. $f^2 + g^2 - 4f + 4g - 2 = 0$

Answer: A

Watch Video Solution

118. The locus of the point the lengths of the tangents from which to the circles $x^2 + y^2 - 2x - 4y - 4 = 0, x^2 + y^2 - 10x + 25 = 0$ are in the ratio 2:1 is

A. $3x^2 + 3y^2 + 38x + 20y + 104 = 0$

B. $3x^2 + 3y^2 - 38x + 20y + 104 = 0$

C. $3x^2 + 3y^2 - 38x - 20y - 104 = 0$

D. $3x^2 + 3y^2 + 38x + 20y + 140 = 0$

Answer: B

Watch Video Solution

119. The locus of the point, the lengths of the tangents from which to the circles $x^2 + y^2 - 4 = 0, x^2 + y^2 - 2x - 4 = 0$ are equals tis

A. x=-1

B. x=3

C. x=0

D. x=1

Answer: C

Watch Video Solution

120. The locus of the points from which the lengths of the tangents to the two circles $x^2 + y^2 + 4x + 3 = 0, x^2 + y^2 - 6x + 5 = 0$ are in the ratio 2:3 is a circle with centre

A. (6,0)

B. (-6,0)

C. (0,6)

D. (0,-6)

Answer: B

Watch Video Solution

121. The locus of the point which is such that the lengths of the tangents from it to the circles $x^2 + y^2 = a^2$ and $x^2 + y^2 = b^2$ are inversely as their radii is

A. $x^2 + y^2 = a^2 - b^2$

B. $x^2 + y^2 = a^2 b^2$

C. $x^2 + y^2 = a^2 + b^2$

D. $x^2 + y^2 = a + b$

Answer: C

Watch Video Solution

122. The length of the intercept made by the circle $x^2 + y^2 - 12x + 14y + 11 = 0$ on x-axis is

A. 9

B. 10

C. 8

D. 6

Answer: B

Watch Video Solution

123. The length of the intercept made by the circle $x^2 + y^2 + 10x - 12y - 13 = 0$ on y-axis is

A. 1

B. 2

C. 4

D. 14

Answer: D

Watch Video Solution

124. The intercept made by the circlee $x^2 + y^2 - 2hx \sin\theta - 2ky \sin\theta - h^2 \cos^2\theta = 0$ on the x-axis is

A. 4h

B. 3h

C. 2h

D. h

Answer: C

Watch Video Solution

125. The extermities of a diameter of a circle have coordinate (-4,-3) and (12,-1). The length of the segment cut off by the circle on y -axis is

A. $5\sqrt{13}$

B. 14

C. $3\sqrt{13}$

D. $\sqrt{55}$

Answer: B

Watch Video Solution

126. The length of the chord x+2y=5 of the circle $x^2 + y^2 = 9$ is

A. 4

B. 8

C. 2

D. 1

Answer: A

Watch Video Solution

127. The length of the chord x=3y+13 cut off by the circle $x^2 + y^2 - 4x + 4y + 3 = 0$ is

A. $2\sqrt{5}$

B. $5\sqrt{2}$

C. $\sqrt{20}$

D. $\sqrt{10}$

Answer: D

Watch Video Solution

128. The equation of the circle with centre (3,-1) and which cuts off a chord of length 6 on the line 2x-5y+18=0 is

A. $x^2 + y^2 - 6x + 2y - 28 = 0$

B. $x^2 + y^2 - 6x + 8 = 0$

C. $x^2 + y^2 + 4x - 16x + 2y - 18 = 0$

D. $3x^2 + 3y^2 + 4x - 6y + 18 = 0$

Answer: A

Watch Video Solution

129. The locus of centre of a circle which passes through the origin and cuts off a length of 4 units from the line x=3 is

A. $y^2 + 6x = 0$

B. $y^2 + 6x = 13$

C. $y^2 + 6x = 10$

D. $x^2 + 6y = 13$

Answer: B

Watch Video Solution

130. The equation of the circle which is touched by y=x, has its centre on the positive direction of the x-axis and cuts off a chord of length 2 unit along the line $\sqrt{3}y - x = 0$

A. $x^2 + y^2 - 4x + 2 = 0$

B. $x^2 + y^2 - 4x + 1 = 0$

C. $x^2 + y^2 - 8x + 8 = 0$

D. $x^2 + y^2 - 4y + 2 = 0$

Answer: A

Watch Video Solution

131. The locus of the foot of the perpendicular drawn from the origin to any chord of the circle $x^2 + y^2 + 2gx + 2fy + c = 0$ which substents a right angle at the origin is

A. $x^2 + y^2 + gx + fy + c/2 = 0$

B. $2(x^2 + y^2) + gx + fy + c = 0$

C. $2(x^2 + y^2 + gx + fy) + 3c = 0$

D. $x^2 + y^2 + 2(gx + fy + c) = 0$

Answer: A

Watch Video Solution

132. The locus of the centre of a circle which passes through the point (h,k) and cuts of a chord of length 2d on the line lx+my+n=0 is

A. $(lx+my+n)^2=\left(l^2+m^2\right)\left[(x-h)^2+(y-k)^2-d^2\right]$

B. $(lx+my+n)^2=\left(m^2+n^2\right)\left[(y-h)^2+(x-k)^2-d^2\right]$

C. $(lx+my+n)^2=\left(l^2+m^2\right)\left[(x+h)^2+(y+k)^2-2d^2\right]$

D. $(lx+my+n)^2=\left(l^3+m^3\right)\left[(2x-2h)^2+(2y-10k)^2-dd^2\right]$

Answer: A

Watch Video Solution

133. The circles $x^2+y^2=4x+8y+5$ intersects the line 3x-4y = m at two distinct points of

A. $-85<m<-35$

B. $-35<m<15$

C. $15 < m < 65$

D. $35 < m < 85$

Answer: B

Watch Video Solution

134. If the line passing through P=(8,3) meets the circle $S \equiv x^2 + y^2 - 8x - 10y + 26 = 0$ at A,B then PA.PB=

A. 5

B. 14

C. 4

D. 24

Answer: A

Watch Video Solution

135. If the tangent at P on the circle $x^2 + y^2 = a^2$ cuts two parallel tangents of the circle at A and B then PA.PB=

A. a

B. a^2

C. 2a

D. $2a^2$

Answer: B

Watch Video Solution

136. The lines 2x+3y+19=0 and 9x+6y-17=0 cuts the coordinate axes in

A. concylclic-points

B. conjugate points

C. same points

D. none

Answer: A

Watch Video Solution

137. If a circle passes through the points of intersection of the axes with the lines ax-y+1=0 and x-2y+3=0 then a=

A. 2

B. 3

C. 1

D. none

Answer: A

Watch Video Solution

138. If the line 2x+3y+1=0, 3x+2y-1=0 intersect the coordinate axes in fourc concyclic points then the equation of the circle passing through these

four points is

A. $x^2 + y^2 + x - y - 1 = 0$

B. $6\left(x^2 + y^2\right) + x - y - 1 = 0$

C. $x^2 + y^2 + 6(x - y) - 1 = 0$

D. $6x^2 + 6y^2 + 6x - 6y - 1 = 0$

Answer: B

Watch Video Solution

139. If the lines 2x-y+11=0, x-2y+3=0 intersect the coordinate axes in four concyclic points the centre of the circle passing through these four points is

A. (17/4,25/4)

B. (-17/4,25/4)

C. (17/4,-25/4)

D. (-17/4,-25/4)

Answer: B

Watch Video Solution

140. The number of tangents that can be drawn from (6,0) to the circle $x^2 + y^2 - 4x - 6y - 12 = 0$ are

A. 4

B. 3

C. 1

D. 2

Answer: C

Watch Video Solution

141. The equation of the chord of contact of the point (4,2) with respect to the circle $x^2 + y^2 - 5x + 4y - 3 = 0$ is

A. $5x - 3y - 25 = 0$

B. 8x-2y-11=0

C. 3x+8y-18=0

D. x-14y-6=0

Answer: C

Watch Video Solution

142. The length of the chord of contact of (-2,3) with respect to the circle $x^2 + y^2 - 2x + 4y + 1 = 0$ is

A. $15\sqrt{13/3}$

B. $5\sqrt{3/13}$

C. $4\sqrt{15/17}$

D. $15\sqrt{3/13}$

Answer: C

Watch Video Solution

Exercise 1C(Pole, Polar)

1. The polar of the point (3,4) w.r.t. $x^2 + y^2 = 25$ is

A. x+2y-7=0

B. 3x+4y-25=0

C. 5x-8y+12=0

D. x-4=0

Answer: B

Watch Video Solution

2. The polar of the point (-2,3) w.r.t. $x^2 + y^2 - 4x - 6y + 5 = 0$ is

A. x=0

B. y=0

C. x=1

D. y=1

Answer: A

Watch Video Solution

3. The polar of the point (1,2) w.r.t. the circle $x^2 + y^2 - 14y + 6 = 0, x^2 + y^2 - 4x + 6y + 4 = 0$ are

A. coincide

B. parallel

C. perpendicular

D. none

Answer: A

Watch Video Solution

4. The polar of the point (1,-2) w.r.t. the circle $x^2 + y^2 + 6y + 5 = 0, x^2 + y^2 + 2x + 8y + 5 = 0$ are

A. parallel

B. coincident

C. perpendicular

D. none

Answer: B

Watch Video Solution

5. The polar of the given point w.r.t. the circle $x^2 + y^2 - 2\lambda x + c = 0$ where λ is a parameter, passes through

A. a fixed point

B. the origin

C. a point on x-axis

D. a point on y-axis

Answer: A

Watch Video Solution

6. The polar of the point (4,1) w.r.t. the circle $x^2 + y^2 - 2x - 2y - 7 = 0$

A. touches the circle

B. intersect the circle at two points

C. does not meet the circle

D. none

Answer: A

Watch Video Solution

7. The polar of the point (1,2) w.r.t. the circle $x^2 + y^2 - 2x - 4y - 4 = 0$

A. touches the circle

B. intersect the circle at two points

C. does not meet the circle

D. none

Answer: C

Watch Video Solution

8. The polar of the point (2t,t-4) w.r.t. the circle $x^2 + y^2 - 4x - 6y + 1 = 0$ passes through the point

A. (1,2)

B. (1,3)

C. (2,1)

D. (3,1)

Answer: D

Watch Video Solution

9. The polar of the point (t-1, 2t) w.r.t. the circle $x^2 + y^2 - 4x + 6y + 4 = 0$ passes through the point of intersection of the lines

A. x-y-2=0, x+2y+4=0

B. 3x+3y+2=0, x+2y+4=0

C. x-y-2=0, x+2y-4=0

D. $-3x + 3y + 2 = 0, x - 2y + 4 = 0$

Answer: A

Watch Video Solution

10. The polar of the point (x_1, y_1) w.r.t. the circle $x^2 + y^2 = a^2$ meets the coordinate axes in A and B. The area of $\triangle OAB$ is

A. $\frac{a^2}{|x_1 y_1|}$

B. $\frac{a^2}{2|x_1 y_1|}$

C. $\frac{a^3}{|x_1 y_1|}$

D. $\frac{a^4}{2|x_1 y_1|}$

Answer: D

Watch Video Solution

11. The polar of the line 8x-2y=11 with respect to the circle $2x^2 + 2y^2 = 11$ is

A. (4,1)

B. (4,-1)

C. (3,1)

D. (4,2)

Answer: B

Watch Video Solution

12. The pole of $3x + 4y - 45 = 0$ w.r.t. circle $x^2 + y^2 - 6x - 8y + 5 = 0$ is

A. (6,8)

B. (3,4)

C. (3/5,4/5)

D. (-6,8)

Answer: A

View Text Solution

13. The polar of a point P w.r.t. a circle of radius a touching both x and y axis and lying in the first quadrant is x+2y=4a. The coordinate of P are

A. (a,2a)

B. (2a,a)

C. (-a,4a)

D. (2a,3a)

Answer: D

Watch Video Solution

14. If O is the origin and OP, OQ are the tangents to the circle $x^2 + y^2 + 2x + 4y + 1 = 0$, the pole of the line PQ is

A. (-1,-2)

B. (0,0)

C. (-2,-1)

D. (-1//2,-1)

Answer: B

Watch Video Solution

15. The polars of two points A(1,3), B(2,-1) w.r.t to circle $x^2 + y^2 = 9$ intersect at C then polar of C w.r.t to the circle is

A. x+3y=9

B. 2x-y=9

C. 4x+y-7=0

D. x-4y+7=0

Answer: C

Watch Video Solution

16. Each side of ΔABC is the polarof the opposite vertex with respect to a circle with centre P. For the ΔABC the point P is

A. centroid

B. circumcentre

C. incentre

D. orthocentre

Answer: D

Watch Video Solution

17. The polar of the line $ax + by + 3a^2 + 3b^2 = 0$ w.r.t. to the circle $x^2 + y^2 + 2ax + 2by - a^2 - b^2 = 0$ is

A. (2a,2b)

B. (-2a,-2b)

C. (-2a,2b)

D. (2a,-2b)

Answer: B

Watch Video Solution

18. The polar of a given point which respect to any one of the circles $x^2 + y^2 - 2kx + c^2 = 0$, (k is a varaible) always passes through a fixed point whatever to be the value of k is

A. $\left(x_1, \frac{x_1^2 - c^2}{y_1}\right)$

B. $\left(-x_1, \frac{x_1^2 - c^2}{y_1}\right)$

C. $\left(x_1, -\frac{x_1^2 - c^2}{y_1}\right)$

D. $\left(+x_1, \frac{x_1^2 - c^2}{y_1}\right)$

Answer: B

Watch Video Solution

19. If (1, a), (b, 2) are conjugate points with renpcet to the circle $x^2 + y^2 = 25$, then 4a+2b=

A. 25

B. 50

C. 100

D. 150

Answer: B

Watch Video Solution

20. If the points (k,1) (2,-3) are conjugate w.r.t. $x^2 + y^2 + 4x - 6y - 12 = 0$ then k

A. -3

B. $2/3$

C. $5/4$

D. 1

Answer: C

Watch Video Solution

21. The point (4,-2), (3,b) are conjugate w.r.t. the circle $x^2 + y^2 = 24$ if b=

A. 6

B. -6

C. 12

D. -4

Answer: B

Watch Video Solution

22. If (4,2) and (k,-3) are conjugate points with respect to $x^2 + y^2 - 5x + 8y + 6 = 0$ them k=

A. $\frac{28}{3}$

B. $-\frac{28}{3}$

C. $\frac{3}{28}$

D. $-\frac{3}{28}$

Answer: A

Watch Video Solution

23. For the circle $x^2 + y^2 - 2x - 4y - 4 = 0$, then lines 2x+3y-1=0, 2x+y+5=0 are

A. perpendicular tangents

B. conjugate

C. parallel tangents

D. none

Answer: B

Watch Video Solution

24. For the circle $x^2 + y^2 - 6x - 6y + 5 = 0$ the lines $3x + y - 2 = 0, x + 7y - 11 = 0$ are

A. conjugate

B. perpendicular tangents

C. parallel tangents

D. none

Answer: A

Watch Video Solution

25. The condition for the lines lx+my+n=0 and $m_1x + m_1y + n_1 = 0$ to be conjugate with respect to the circle $x^2 + y^2 = r^2$ is

A. $r^2(ll_1 - mm_1) = \cap_1$

B. $r^2(ll_1 - mm_1) + \cap_1 = 0$

C. $r^2(ll_1 - mm_1)$=$nn1$

D. $r^2(ll_1 - mm_1) = \cap_1$

Answer: D

View Text Solution

26. If the lines x+2y+K=0, x+y-3=0 are conjugate w.r.t. $x^2 + y^2 = 9$, then $\mathrm{k} =$

A. 3

B. -9

C. -3

D. -5

Answer: B

Watch Video Solution

27. If the lines x+2y+k=-, x+y-3=0 are conjugate w.r.t. the circle $x^2 + y^2 - 4x + 3y - 1 = 0$ then k=

A. 4

B. -9

C. -3

D. -5

Answer: A

View Text Solution

28. If the lines kx+2y-4=0 and 5x-2y-4=0 are conjugate with respect to the circle $x^2 + y^2 - 2x - 2y + 1 = 0$ then k=

A. 0

B. 1

C. 2

D. 3

Answer: B

Watch Video Solution

29. The polar of three points with respect to a given circle are concurrent, then the three points

A. are the vertices of an equilateral triangle

B. are collinear

C. are coincident

D. none

Answer: B

View Text Solution

30. The conjugate line 3x+4y-45=0 with respect to $x^2 + y^2 - 6x - 8y + 5 = 0$ which is perpendicular to x+y=0 is

A. x-y=8

B. x-y=2

C. x-y+2=0

D. x-y+8=0

Answer: C

Watch Video Solution

31. The straight line x-2y+1=0 intersects the circle $x^2 + y^2 = 25$ in points P and Q the coordinates of the point of intersection of tangents drawn at P and Q to the circle is

A. (25,50)

B. (-25,50)

C. (25,-50)

D. (-25,-50)

Answer: B

Watch Video Solution

32. The line 4x+4y-11=0 intersects the circle $x^2 + y^2 - 6x - 4y + 4 = 0$ at A and B. The point of intersection of the tangents at A,B is

A. (-1,-2)

B. (1,2)

C. (-1,2)

D. (1,-2)

Answer: A

Watch Video Solution

33. The point ef intersection of the tangents to the circle passing through (4, 7), (5,6) (1,5) at the points where it is cut by the line 5x+y+17=0

A. (-4,2)

B. (4,2)

C. (6,4)

D. (8,4)

Answer: A

View Text Solution

34. Let A and B be two fixed points. If a perpendicular p is drawn fros A to the polar of with respect to the circle $x^2 + y^2 = a^2$ and perpendicular q is drawn from B to the polar of A then

A. p=q

B. pOA=qOB

C. pOB=qOA

D. $p^2 = q^2$

Answer: C

View Text Solution

35. The lengths of the tungents from the points A and B to the circle are l_1 and l_2 respectively. If A and are conjugate points, then $AB^2 =$

A. $l_1^2 - l_2^2$

B. $l_1^2 + l_2^2$

C. $l_1^2 + l_2^2$

D. $l_1^2 l_2^2$

Answer: B

Watch Video Solution

36. The polars of any two points A and B wrt a circle, centre O meet at P. Then $AP^2 - BP^2 =$

A. $AO^2 + BO^2$

B. $OA^2 - OB^2$

C. OA.OB

D. none

Answer: B

View Text Solution

37. If polar of P w.r.t. S=0 touch the circle $x^2 + y^2 = a^2$, the locus of P is

A. $a^2\left[(x+g)^2 + (y+f)^2\right] = c^2$

B. $(gx + fy + c)^2 = a^2\left[(x+g)^2 + (y+f)^2\right]$

C. $(gx + fy + c)^2 = a^2$

D. $(gx + fy + c)^2 = a^2(x^2 + y^2)$

Answer: B

View Text Solution

38. The locus of poles of tangents to the circle $x^2 + y^2 = a^2$ w.r.t the circle $x^2 + y^2 + 2ax - a^2 = 0$ is

A. $y^2 = 4ac$

B. $y^2 = 2ax$

C. $y^2 + 2ax = 0$

D. $y^2 + 4ax = 0$

Answer: D

Watch Video Solution

39. The locus of poles of tangents to the circle $(x-p)^2+y^2=b^2$ w.r.t. the circle $x^2+y^2=a^2$ is

A. $\left(a^2-px\right)^2=b^2\left(x^2+y^2\right)$

B. $\left(a^2-bx\right)^2=p^2\left(x^2+y^2\right)$

C. $\left(a^2-px\right)^2=b^2\left(x^2+y^2\right)$

D. $\left(a^2-bx\right)^2=p^2\left(x^2+y^2\right)$

Answer: A

Watch Video Solution

40. If the polars of points on the circle $x^2+y^2=a^2$ w.r.t. the circle $x^2+y^2=b^2$ touch the circle $x^2+y^2=c^2$ then a, b, c are in

A. A.P.

B. G.P.

C. H.P.

D. A.G.P.

Answer: B

Watch Video Solution

41. Polar of the origin w.r.t. the circle $x^2 + y^2 + 2ax + 2by + c = 0$ touches the circle $x^2 + y^2 = r^2$ if

A. $c = r\left(a^2 + b^2\right)$

B. $r = c\left(a^2 + b^2\right)$

C. $c^2 = r^2\left(a^2 + b^2\right)$

D. $r^2 = c^2\left(a^2 + b^2\right)$

Answer: C

Watch Video Solution

42. A tangent at a point on the circle $x^2 + y^2 = a^2$ intersects a concentrie circle S at P and Q. The tangents to S at P and Q meet on the circle $x^2 + y^2 = b^2$. The equation to the circle S in

A. $x^2 + y^2 = a$

B. $x^2 + y^2 = b$

C. $x^2 + y^2 = ab$

D. $x^2 + y^2 = a^2 + b^2$

Answer: C

Watch Video Solution

43. The pole of a straight line with respect to the circle $x^2 + y^2 = a^2$ lies on the circle $x^2 + y^2 = 9a^2$. If the straight line touches the circle $x^2 + y^2 = r^2$, then

A. $9a^2 = r^2$

B. $9r^2 = a^2$

C. $r^2 = a^2$

D. none

Answer: B

Watch Video Solution

44. The locus of the point, the chord of contact of which wrt the circle $x^2 + y^2 = a^2$ subtends a right angle at the centre of the circle is

A. $x^2 + y^2 = \frac{a^2}{2}$

B. $x^2 + y^2 = \frac{a^2}{3}$

C. $x^2 + y^2 = 2a^2$

D. $x^2 + y^2 = 3a^2$

Answer: C

Watch Video Solution

45. The locus of the point, whose chord of contact w.r.t the circle $x^2 + y^2 = a^2$ makes an angle 2α at the centre of the circle is

A. $x^2 + y^2 = 2a^2$

B. $x^2 + y^2 = 2a^2 \cos^2 \alpha$

C. $x^2 + y^2 = a^2 \sec^2 \alpha$

D. $x^2 + y^2 = a^2 \tan^2 \alpha$

Answer: C

Watch Video Solution

46. The condition that the chord of contact of the point (b,c) w.r.t. to the circle $x^2 + y^2 = a^2$ should substend a right angled at the centre is

A. $b^2 + c^2 = a^2$

B. $b^2 + c^2 = 2a^2$

C. $b^2 + c^2 = 3a^2$

D. $2b^2 + 2c^2 = a^2$

Answer: B

Watch Video Solution

47. If the pole of the line with respect to the circle $x^2 + y^2 = c^2$ lies on the circle $x^2 + y^2 = 9c^2$ then the line is a tangent to the circle with centre origin is

A. $9x^2 + 9y^2 = c^2$

B. $9x^2 + 9y^2 = c$

C. $8x^2 + 8y^2 = c^2$

D. $8x^2 + 8y^2 = c$

Answer: A

Watch Video Solution

48. A point P is taken on the circle $x^2 + y^2 = a^2$ and PN, PM are draw, perpendicular to the axes. The locus of the pole of the line MN is

A. $\frac{1}{x^2} + \frac{1}{y^2} = \frac{1}{a^2}$

B. $\frac{1}{x^2} + \frac{1}{y^2} = \frac{1}{a}$

C. $\frac{1}{x^2} - \frac{1}{y^2} = \frac{1}{a}$

D. $\frac{1}{x^2} - \frac{1}{y^2} = \frac{1}{a^2}$

Answer: A

Watch Video Solution

49. If the pole of a line w.r.t to the circle $x^2 + y^2 = a^2$ lies on the circle $x^2 + y^2 = a^4$ then the line touches the circle

A. $x^2 + y^2 = 2$

B. $x^2 + y^2 = 1$

C. $x^2 + y^2 = 3$

D. none

Answer: B

Watch Video Solution

50. The area of the triangle formed by the tangents from (1,3) to the circle $x^2 + y^2 - 4x + 6y + 1 = 0$ and its chord of contact is

A. $\frac{250\sqrt{3}}{37}$

B. $\frac{125\sqrt{3}}{7}$

C. `(250sqrt3)

D. $\frac{125\sqrt{3}}{7}$

Answer: A

Watch Video Solution

51. The locus of the poles of the line $ax + by + c = 0$ w.r.t a system of circles $x^2 + y^2 = \lambda$ where λ is parameter is

A. $ax + by = \lambda$

B. $bx + ay = \lambda$

C. $ax - by = 0$

D. $bx - ay = 0$

Answer: D

Watch Video Solution

52. The locus of the poles of the line 2x+3y-4=0 w.r.t. the circle $x^2 + y^2 + 2\lambda x - 16 = 0$ is

A. $13x^2 - 22xy - 14y + 48 = 0$

B. $x^2 - 32xy - 14y + 88 = 0$

C. $3x^2 - 2xy - 4y + 48 = 0$

D. $3x^2 - 2xy - 4y - 48 = 0$

Answer: C

View Text Solution

53. The inverse point of (1,-1) with respect to the circle $x^2 + y^2 = 4$, is

A. (-1,1)

B. (-2,2)

C. (1,-1)

D. (2,-2)

Answer: D

Watch Video Solution

54. The inverse point of origin w.r.t. the circle $x^2 + y^2 + 2gx + 2fy + c = 0$ is

A. $\left(\frac{cg}{g^2 + f^2}, \frac{cf}{g^2 + f^2}\right)$

B. $\left(\frac{-cf}{g^2 - f^2}, \frac{-cg}{g^2 - f^2}\right)$

C. $\left(\frac{-cg}{2g^2 + 2f^2}, \frac{-cf}{2g^2 + 2f^2}\right)$

D. $\left(\frac{-cg}{g^2 + f^2}, \frac{-cf}{g^2 + f^2}\right)$

Answer: D

View Text Solution

55. The inverse point of (1,2) origin w.r.t. the circle $x^2 + y^2 - 4x - 6y + 9 = 0$ is

A. (0,0)

B. (1,0)

C. (0,1)

D. (1,1)

Answer: C

Watch Video Solution

56. The inverse point of (1,2) w.r.t. the circle $x^2 + y^2 = 25$, is (5,k) then k=

A. 10

B. 12

C. 22

D. 40

Answer: A

Watch Video Solution

57. The inverse point of (x_1, y_1) w.r.t. the circle $x^2 + y^2 = a^2 is($ k(x_1),k $(y_1))$`, then k=

A. $\frac{a^2}{x_1^2 - y_1^2}$

B. $\frac{a^2}{x_1^2 + y_1^2}$

C. $\frac{x^2}{x_1^2 + y_1^2}$

D. $\frac{y^2}{x_1^2 + y_1^2}$

Answer: B

Watch Video Solution

58. For the circle $x^2 + y^2 - 6x + 8y - 1 = 0,$ points (2,3), (-2,-1) are

A. conjugate points

B. end points of a diameter

C. inverse points

D. none

Answer: A

View Text Solution

59. For the circle $x^2 + y^2 - 3x - 5y + 1 = 0$, the points (4,2), (3,-5) are

A. conjugate points

B. end points of a diameter

C. inverse points

D. none

Answer: B

View Text Solution

60. For the circle $x^2 + y^2 - 2x + 2y + 1 = 0$, the points (-6,1),(2,3), (14/15,-11/15) are

A. collinear

B. lie on a diameter

C. pair wise conjuate

D. none

Answer: C

View Text Solution

61. The equation of the chord of the circle $x^2 + y^2 = 25$ with (1,-1) as the mid point is

A. x+y=2

B. x+y+2=0

C. x-y=2

D. 2x-y=0

Answer: C

Watch Video Solution

62. The equation of the chord of the circle $x^2 + y^2 - 4x + 6y - 3 = 0$ having (1,-2) as it midpoint is

A. 2x-3y-13=0

B. x-y-3=0

C. x+2y-5=0

D. 2x+3y+13=0

Answer: B

Watch Video Solution

63. Given that for the circle $x^2 + y^2 - 4x + 6y + 1 = 0$ the line with equation $3x - y = 1$ is a chord. The midpoint of the chord is

A. (2/5,11/5)

B. (-2/5,11/5)

C. (-2/5,-11/5)

D. (2/5,-11/5)

Answer: C

Watch Video Solution

64. The length and the midpoint of the chord 4x-3y+5=0 w.r.t. the circle $x^2 + y^2 - 2x + 4y - 20 = 0$ is

A. $8, \left(-\frac{7}{5}, -\frac{1}{5}\right)$

B. $18, \left(\frac{7}{5}, \frac{1}{5}\right)$

C. $10, \left(-\frac{17}{5}, -\frac{11}{5}\right)$

D. $28, \left(-\frac{7}{5}, -\frac{8}{5}\right)$

Answer: A

Watch Video Solution

65. The length and the midpoint of the chord 2x+y-5=0 w.r.t. the circle $x^2 + y^2 = 9$ is

A. 2,(5,2)

B. 4 ,(2,1)

C. 10,(8,4)

D. 11,(13,11)

Answer: B

View Text Solution

66. If the tangent at (3,-4) to the circle $x^2 + y^2 - 4x + 2y - 5 = 0$ cuts the circle $x^2 + y^2 + 16x + 2y + 10 = 0$ in A and B then the midpoint of AB is

A. (-6,-7)

B. (2,-1)

C. (2,1)

D. (5,4)

Answer: A

Watch Video Solution

67. The midpoint of the chord formed by the polar of (-9,12) w.r.t. $x^2 + y^2 = 100$ is

A. $\left(4, \frac{-4}{3}\right)$

B. $\left(-4, \frac{16}{3}\right)$

C. $\left(-4, \frac{16}{9}\right)$

D. $\left(4, \frac{16}{3}\right)$

Answer: B

Watch Video Solution

68. The locus of midpoints of chords of the circle $x^2 + y^2 - 2px = 0$ passing through the origin is

A. $x^2 + y^2 + 2px = 0$

B. $x^2 + y^2 - px = 0$

C. $x^2 + y^2 + px = 0$

D. $x^2 + y^2 - 4px = 0$

Answer: B

Watch Video Solution

69. The locus of midpoints of the chord of the circle $x^2 + y^2 = 25$ which pass through a fixed point (4,6) is a circle. The radius of that circle is

A. $\sqrt{52}$

B. $\sqrt{2}$

C. $\sqrt{13}$

D. $\sqrt{10}$

Answer: C

Watch Video Solution

70. From the origin chords are drawn to the circle $x^2 + y^2 - 2y = 0$. The locus of the middle points of these chords is

A. $x^2 + y^2 - y = 0$

B. $x^2 + y^2 - x = 0$

C. $x^2 + y^2 - 2x = 0$

D. $x^2 + y^2 - x - y = 0$

Answer: A

Watch Video Solution

71. Let C be the circle with centre (0,0) and radius 3 units. The equation of the locus of the midpoint of the chords of the circle C that substend an angle of $2\pi/3$ at its centre is

A. $x^2 + y^2 = 27/4$

B. $x^2 + y^2 = 9/4$

C. $x^2 + y^2 = 3/2$

D. $x^2 + y^2 = 1$

Answer: B

Watch Video Solution

72. The equation of the straight line meeting the circle $x - 3y - 15 = 0$ and which is at the same distance from the centre is

A. x-3y+25=0

B. x-3y-25=0

C. x-3y+15=0

D. x-3y+5=0

Answer: A

View Text Solution

73. The equation of the straight line meeting the circle $x^2 + y^2 = a^2$ in two points equal distance d from a point (x_1, y_1) on the circumference is $xy_1 + yy_1 =$

A. $a^2 - ad^2$

B. $a^2 + \frac{1}{2}d^2$

C. $a^2 - \frac{1}{2}d^2$

D. 0

Answer: C

Watch Video Solution

74. If OA, OB are two equal chords of the circle $x^2 + y^2 - 2x + 4y = 0$ perpendicular to each other and passing through the origin, then the equations of OA and OB are

A. 3x+y=0, x+3y=0

B. 3x-y=0, x-3y=0

C. 3x-y=0, x+3y=0

D. 3x+y=0, x-3y=0

Answer: C

View Text Solution

75. Let AB be the chord 4x-3y+5=0 with respect to the circle $x^2 + y^2 - 2x + 4y - 20 = 0$ If C=(7,1) then the area of the triangle ABC is

A. 15 sq. unit

B. 20 sq. unit

C. 24 sq. unit

D. 45 sq. unit

Answer: C

Watch Video Solution

76. From the point A(0,3) on the circle $x^2 + 4x + (y-3)^2 = 0$, a chord AB is drawn and extended to a point P, such that AP=2AB. The locus of P is

A. $x^2 + 4x + (y-3)^2 = 0$

B. $x^2 + 8x + (y-3)^2 = 0$

C. $x^2 + 4x + (y-3)^2 = 0$

D. $x^2 + 8x - (y-3)^2 = 0$

Answer: B

Watch Video Solution

77. The equation to the locus of the midpoints of chords of the circle $x^2 + y^2 - 8x + 6y + 20 = 0$ which are parallel to 3x+4y+5=0 is

A. 4x+13y+125=0

B. 4x-3y-25=0

C. 14x-23y-22=0

D. x-y-5=0

Answer: B

Watch Video Solution

78. The locus of the midpoints oof chords of the circle $x^2 + y^2 = 25$ which touch the circle $(x - 12)^2 + (y - 5)^5 = 289$ is

A. $\left(x^2 + y^2 - 12x - 5y\right)^2 = 289\left(x^2 + y^2\right)$

B. $\left(x^2 + y^2 + 12x - 5y\right)^2 = 87\left(x^2 + y^2\right)$

C. $(3x^2 - 3y^2 - 13x - 3y)^2 = 18(x^2 + y^2)$

D. $(x^2 + y^2 + 15x + 15y)^2 = 89(x^2 - y^2)$

Answer: A

View Text Solution

79. The locus of the midpoints oof chords of the circle $x^2 + y^2 = 4$ which substends a right angle at the origin is

A. $x^2 + y^2 = 2$

B. $x^2 + y^2 = 4r^2$

C. $x^2 + y^2 = 8r^2$

D. $x^2 + y^2 = r^2/r2$

Answer: A

Watch Video Solution

80. The equation to the locus of the midpoints of chords of the circle $x^2 + y^2 = r^2$ having a constant length 2l is

A. x+y=2

B. $x^2 + y^2 = 1$

C. $x^2 + y^2 = 2$

D. x+y=1

Answer: C

Watch Video Solution

81. The equation to the locus of the midpoints of chords of the circle $x^2 + y^2 = r^2$ having a constant length 2l is

A. $x^2 + y^2 = l^2$

B. $x^2 + y^2 = r^2 - l^2$

C. $x^2 + y^2 = r^2 + l^2$

D. $x^2 + y^2 = 4l^2$

Answer: B

Watch Video Solution

82. The length of the chords of the circle $x^2 + y^2 - 2x - 6y - 15 = 0$ which makes an angle of 60° at (1,3) and the locus of the midpoints of all such chords are

A. $5, 4(x^2 + y^2 - 2x - 6y) - 35 = 0$

B. $10, (x^2 + y^2 - 2x - 6y) - 135 = 0$

C. $15, (4x^2 + y^2 - 2x - 6y) - 35 = 0$

D. $3, 4(x^2 + y^2 + 2x + 6y) - 35 = 0$

Answer: A

Watch Video Solution

83. The loucs of the midpoints of the chords of the circle $4x^2 + 4y^2 - 12x + 4y + 1 = 0$ which subtend an angle of $\pi/3$ as its centre is a circle of radius

A. $\frac{3}{4}$

B. $\frac{3\sqrt{3}}{4}$

C. $\frac{3}{2}$

D. $4\sqrt{3}$

Answer: B

View Text Solution

84. The locus of the midpoints of chords of the circle $x^2 + y^2 - 6x + 8y - 24 = 0$ which make an angle $\tan^{-1} 12/5$ with the x-axis is

A. 12x-5y=33

B. 5x+12y=33

C. 5x+12y+33=0

D. none

Answer: C

View Text Solution

85. The locus of the midpoint of the chord of the circle $x^2 + y^2 - 2x - 2y - 2 = 0$ which makes an angle of 120° at the centre is

A. $x^2 + y^2 - 2x - 2y + 1 = 0$

B. $x^2 + y^2 + x + y - 1 = 0$

C. $x^2 + y^2 - 2x - 2y - 1 = 0$

D. none

Answer: A

Watch Video Solution

86. (a,b) is the midpoint of the chord AB of the circle $x^2 + y^2 = r^2$. The tangents at A,B meet at C, then the area of $\triangle ABC =$

A. $\frac{\left(a^2 + b^2 + r^2\right)^{3/2}}{\sqrt{a^2 + b^2}}$

B. $\frac{\left(r^2 - a^2 - b^2\right)^{3/2}}{\sqrt{a^2 + b^2}}$

C. $\frac{\left(a^2 - b^2 - r^2\right)^{3/2}}{\sqrt{a^2 + b^2}}$

D. none

Answer: B

Watch Video Solution

87. Find the equation of the pair of tangents from $(10, 4)$ to the circle $x^2 + y^2 = 25$.

A. $9x^2 + 80xy - 75y^2 - 500x - 200y + 2900 = 0$

B. $x^2 - 15y^2 - 6x + 60y - 51 = 0$

C. $16x^2 + 20xy - 5y^2 - 36x + 90y - 261 = 0$

D. $3x^2 - 10xy + 3y^2 = 0$

Answer: A

Watch Video Solution

88. Find the pair of tangents drawn from

$(3, 2)$to the circle $x^2 + y^2 - 6x + 4y - 2 = 0$

A. $9x^2 + 80xy - 75y^2 - 500x - 200y + 2900 = 0$

B. $x^2 - 15y^2 - 6x + 60y - 51 = 0$

C. $16x^2 + 20xy - 5y^2 - 36x + 90y - 261 = 0$

D. $3x^2 - 10xy + 3y^2 = 0$

Answer: B

Watch Video Solution

89. The equation of the tangents drawn from the origin to the circle $x^2 + y^2 - 2gx - 2fy + f^2 = 0$ is

A. $x = 0, (f^2 - g^2)x - 2fgy = 0$

B. $x = 1, (f^2 + 2g^2)x + 2fgy = 0$

C. $x = 2, (2f^2 + 3g^2)x + 2fgy = 0$

D. $x = 5, (3f^2 + 5g^2)x + 2fgy = 0$

Answer: A

Watch Video Solution

90. The angle between the tangents drawn from (0,0) to the circle $x^2 + y^2 + 4x - 6y + 4 = 0$ is

A. $\sin^{-1}\frac{5}{13}$

B. $\sin^{-1}\frac{5}{12}$

C. $\sin^{-1}\frac{12}{13}$

D. $\frac{\pi}{2}$

Answer: C

Watch Video Solution

91. If θ is the angle between the tangents from (-1,0) to the circle $x^2 + y^2 - 5x + 4y - 2 = 0$, then $\theta =$

A. $2\tan^{-1}\left(\frac{7}{4}\right)$

B. $\tan^{-1}\left(\frac{7}{4}\right)$

C. $2\cot^{-1}\left(\frac{7}{4}\right)$

D. $\cot^{-1}\left(\frac{7}{4}\right)$

Answer: A

Watch Video Solution

92. From any point on the circle $x^2 + y^2 = a^2$ tangents are drawn to the circle $x^2 + y^2 = a^2 \sin^2 \theta$. The angle between them is

A. $\theta / 2$

B. θ

C. 2θ

D. none

Answer: C

Watch Video Solution

93. The condition that the pair of tangents drawn from the origin to the circle $x^2 + y^2 + 2gx + 2fy + c = 0$ may be at right angles is

A. $g^2 + f^2 + c = 0$

B. $g^2 + f^2 + c = c$

C. $g^2 + f^2 = 2c$

D. $2\left(g^2+f^2\right)=c$

Answer: C

Watch Video Solution

94. The condition that the pair of tangents drawn from the origin to the circle $x^2+y^2+2gx+2fy+c=0$ may be at right angles is

A. $g^2+f^2+c=0$

B. $g^2+f^2=c$

C. $g^2+f^2=2c$

D. $2\left(g^2+f^2\right)=c$

Answer: A

Watch Video Solution

95. The angle between a pair of tangents drawn from a point P to the circle $x^2 + y^2 + 4x - 6y + 9\sin^2\alpha + 13\cos^2\alpha = 0$ is 2α. The equation of the locus of the point P is

A. $x^2 + y^2 + 4x - 6y + 4 = 0$

B. $x^2 + y^2 + 4x - 6y + 9 = 0$

C. $x^2 + y^2 + 4x - 6y - 4 = 0$

D. $x^2 + y^2 + 4x - 6y + 9 = 0$

Answer: D

Watch Video Solution

96. From any point on the circle $x^2 + y^2 + 2gx + 2fy + c = 0$ tangents are drawn to the circle $x^2 + y^2 + 2gx + 2fy + c\sin^2\alpha + (g^2 + f)\cos^2\alpha = 0$. The angle between the tangents is

A. α

B. 2α

C. 4α

D. $\alpha/2$

Answer: B

Watch Video Solution

97. The tangents drawn from the origin $x^2 + y^2 - 2rx - 2hy + h^2 = 0$ are per-pendicular if

A. h=r+1

B. h=-4

C. $r^2 + h^2 = 1$

D. $r^2 = h^2$

Answer: D

Watch Video Solution

98. The parametric equation of the circle $(x-3)^2+(y-2)^2=100$ are

A. $x=3+10\cos\theta, y=2+10\sin\theta$

B. $x=1, 1+5\cos\theta, y=5\sin\theta$

C. $x=-3-10\cos\theta, y=2-10\sin\theta$

D. $x=-5+10\cos\theta, y=-6+10\sin\theta$

Answer: A

Watch Video Solution

99. The coordinate of the point on the circle $(x-1)^2+(y+2)^2=9$ having θ as the parameter are

A. $(2+3\cos\theta, 2+3\sin\theta)$

B. $(1+3\cos\theta, -2+3\sin\theta)$

C. $(1 - 3\cos\theta, \ -2 - 3\cos\theta)$

D. $(10 + 13\cos\theta, \ -5 + 8\sin\theta)$

Answer: B

Watch Video Solution

100. The parametric equation of the circle $x^2 + y^2 + 8x - 6y = 0$ are

A. $x = 4 + 5\cos\theta, y = 3 + 5\sin\theta$

B. $x = -4 + 5\cos\theta, y = 3 + 5\sin\theta$

C. $x = 4 + 5\cos\theta, y = -3 + 5\sin\theta$

D. $x = -4 + 5\cos\theta, y = -3 + 5\sin\theta$

Answer: B

Watch Video Solution

101. The equation of the circle passing through the point $(-1+3\cos\theta, 2+3\sin\theta)$ is

A. $x^2+y^2-4x+6y-12=0$

B. $x^2+y^2+2x-4y-4=0$

C. $x^2+y^2-14x+16y-32=0$

D. $x^2+y^2-20x-40y-40=0$

Answer: B

Watch Video Solution

102. Show that the locus of the point of inter section of the lines $x\cos\theta+y\sin\theta=a, x\sin\theta-y\cos\theta=b, \theta$ is a parameter is a circle.

A. a

B. b

C. a^2+b^2

D. $\sqrt{a^2+b^2}$

Answer: D

Watch Video Solution

103. If $x = -2+3\cos\theta, y = 1+3\sin\theta$ then the locus of the point (x,y) is a circle with centre and radius

A. (6,9),2

B. (2,-1), 3

C. (-2,1),3

D. (5,1),5

Answer: C

Watch Video Solution

104. The parametric equation $x = 2a\dfrac{(1-t^2)}{1+t^2}$ and $y = \dfrac{4at}{l+t^2}$ represent a circle of radius

A. a/2

B. a

C. 2a

D. 4a

Answer: C

Watch Video Solution

105. If a straight line through $C(-\sqrt{8}, \sqrt{8})$ making an angle 135° with the x-axis cuts the circle $x = 5\cos\theta, y = 5\sin\theta$ in points A and B, then length of segment AB is

A. 5

B. 10

C. 15

D. $15\sqrt{2}$

Answer: B

Watch Video Solution

106. The locus of the point of intersection of the tangents to the circle $x = r\cos\theta, y = r\sin\theta$ at points whose parametric angles differ by $\pi/3$ is

A. $x^2 + y^2 = r^2$

B. $x^2 + y^2 = 2r^2$

C. $3\left(x^2 + y^2\right) = r^2$

D. $3\left(x^2 + y^2\right) = 4r^2$

Answer: D

Watch Video Solution

107. Equation to the tangent at $(a(1+\cos\alpha), a\sin\alpha)$ on the circle $x^2+y^2-2ax=0$ is

A. $x\cos\alpha + y\sin\alpha = 2a\sin^2\alpha/2$

B. $x\cos\alpha + y\sin\alpha = 2a\cos^2\alpha/2$

C. $x\cos\alpha + y\sin\alpha = 2a$

D. none

Answer: B

Watch Video Solution

Exercise 1D(Angle Between Circles)

1. The number of common tangents that can be drawn to the circles $x^2+y^2-4x+6y+8=0, x^2+y^2-10x-6y+14=0$

A. touch internally

B. touch externally

C. intersecting at two points

D. are such that one completely lies outside the other

Answer: B

Watch Video Solution

2. Consider the circle $x^2 + (y-1)^2 = 9, (x-1)^2 + y^2 = 25$. They are such that

A. these circles touch each other

B. one of these circles lies entirely inside the other

C. each of these circles lies outside the other

D. they intersect in two points

Answer: B

View Text Solution

3. If the two circles $(x-2)^2+(y-3)^2=r^2$ and $x^2+y^2-10x+2y+17=0$ intersect in two distinct point then

A. $2<r<8$

B. $r<2$

C. $r=2$

D. $r>2$

Answer: A

Watch Video Solution

4. The condition that the circles $x^2+y^2+2ax+c=0, x^2+y^2+2by+c=0$ may touch each other is

A. $ab>0, c<0$

B. $ab < 0, c > 0$

C. $ab = 0, c > 0$

D. $ab = 0, c < 0$

Answer: D

Watch Video Solution

5. Let A and B be any two point on each of the circles $x^2 + y^2 - 8x - 8y + 28 = 0$ and $x^2 + y^2 - 2x - 3 = 0$ respectively . If d is the distance between A and B then the set of all possible values of d is

A. $1 \leq d \leq 9$

B. $1 \leq d \leq 8$

C. $0 \leq d \leq 8$

D. $0 \leq d \leq 9$

Answer: A

Watch Video Solution

6. The circles $x^2 + y^2 - 10x + 16 = 0$ and $x^2 + y^2 = r^2$ intersect each other in two distinct points if

A. $r < 2$

B. $r > 8$

C. $2 < r < 8$

D. $2 \leq r \leq 8$

Answer: C

Watch Video Solution

7. If the two circles $(x-1)^2 + (y-3)^2 = r^2$ and $x^2 + y^2 - 8x + 2y + 8 = 0$ intersect in

two distinct points, then

A. $r < 2$

B. r=2

C. $r > 2$

D. $2 < r < 8$

Answer: D

Watch Video Solution

8. If the circles $x^2 + y^2 - 4x + 6y + 8 = 0, x^2 + y^2 - 10x - 6y + 14 = 0$ touch each other, then the point of contact is

A. (3,-1)

B. (3,1)

C. (7,5)

D. (-7,-5)

Answer: A

View Text Solution

9. The point of contact of the circle $x^2 + y^2 + 2x + 2y + 1 = 0$ and $x^2 + y^2 - 2x + 2y + 1 = 0$

A. (0,1)

B. (0,-1)

C. (1,0)

D. (-1,0)

Answer: B

Watch Video Solution

10. The point at which the circles $x^2 + y^2 - 4x - 4y + 7 = 0$ and $x^2 + y^2 - 12x - 10y + 45 = 0$ touch each other is

A. $\left(\frac{2}{5}, \frac{5}{6}\right)$

B. $\left(\frac{14}{5}, \frac{13}{5}\right)$

C. $\left(\frac{12}{5}, 2 + \frac{\sqrt{21}}{5}\right)$

D. $\left(\frac{13}{5}, \frac{14}{5}\right)$

Answer: B

Watch Video Solution

11. If the circle $x^2 + y^2 + 2ax + 4ay - 3a^2 = 0$ and $x^2 + y^2 - 8ax - 6ay + 7a^2 = 0$ touch each other externally, the point of contact is

A. (a,a)

B. (0,a)

C. (a,0)

D. (-a,0)

Answer: C

View Text Solution

12. If the circles $x^2 + y^2 = a^2, x^2 + y^2 - 6x - 8y + 9 = 0$ touch externally then a=

A. 1

B. -1

C. 21

D. 16

Answer: A

Watch Video Solution

13. If the circles $(x-a)^2+(y-b)^2=r^2, (x-b)^2+(y-a)^2=r^2$ touch each other then the point of contact is

A. $\alpha^2+\beta^2=r^2$

B. $\alpha^2+\beta^2=2r^2$

C. $(\alpha^2+\beta^2)=2r^2$

D. $(\alpha^2+\beta^2)=r^2$

Answer: C

Watch Video Solution

14. The condition that the circles $x^2+y^2+2ax+c=0, x^2+y^2+2by+c=0$ may touch each other is

A. $\frac{1}{a}+\frac{1}{b}=\frac{1}{c}$

B. $\frac{1}{a}+\frac{1}{b}=\frac{1}{c^2}$

C. $\frac{1}{a^2}+\frac{1}{b^2}=\frac{1}{c}$

D. $\frac{1}{a^2}+\frac{1}{b^2}=\frac{1}{c^2}$

Answer: C

Watch Video Solution

15. The condition that the circles $x^2+y^2+2ax+2by+c=0, x^2+y^2+2bx+2ay+c=0$ to touch each other is

A. $(a+b)^2=c$

B. $(a+b)^2=2c$

C. $(a-b)^2=c$

D. $(a-b)^2=2c$

Answer: B

Watch Video Solution

16. The two circles $x^2 + y^2 = ax, x^2 + y^2 = c^2(c > 0)$ touch each other if

A. a=2c

B. |a|=2c

C. 2|a|=c

D. |a|=c

Answer: D

Watch Video Solution

17. The equation of the circle with centre (-1,1) and touch the circle $x^2 + y^2 - 4x + 6y - 3 = 0$ externally is

A. $x^2 + y^2 + 2x - 2y + 1 = 0$

B. $2x^2 + 2y^2 + 12x - 2y + 1 = 0$

C. $x^2 + y^2 + 2x + 12y + 11 = 0$

D. $3x^2 + 4y^2 + 20x - 21y + 1 = 0$

Answer: A

Watch Video Solution

18. The equation of the circle radius is 5 and which touches the circle $x^2 + y^2 - 2x - 4y - 20 = 0$ at this point $(5,5)$ is

A. $x^2 + y^2 - 18x - 16y + 120 = 0$

B. $x^2 + y^2 + 18x + 16y - 120 = 0$

C. $x^2 + y^2 - 18x - 16y - 120 = 0$

D. $x^2 + y^2 + 18x + 16y + 120 = 0$

Answer: A

Watch Video Solution

19. The equation to the circle whose radius is 3 and which touches internally the circle $x^2 + y^2 - 4x + 6y - 12 = 0$ at this point $(-1,1)$ is

A. $5x^2 + 5y^2 - 8x - 14y - 32 = 0$

B. $5x^2 + 5y^2 + 8x + 14y + 32 = 0$

C. $5x^2 + 5y^2 - 8x - 14y - 16 = 0$

D. $5x^2 + 5y^2 - 8x + 14y - 32 = 0$

Answer: D

Watch Video Solution

20. The equation of the circle whose radius is 3 and which touches the circle $x^2 + y^2 + 2x + 6y - 15 = 0$ externally at the point (2,1) is

A. $5(x^2 + y^2) - 2x + 14y - 35 = 0$

B. $x^2 + y^2 + 30x - 22y + 121 = 0$

C. $x^2 + y^2 - 18x - 16y + 120 = 0$

D. $x^2 + y^2 - 46x - 28y = 0$

Answer: A

View Text Solution

21. The centre of the circle passing through the points (0,0), (1,0) and touching the circle $x^2 + y^2 = 9$ is

A. $\left(\frac{3}{2}, \frac{1}{2}\right)$

B. $\left(\frac{1}{2}, \frac{3}{2}\right)$

C. $\left(-\frac{1}{\sqrt{2}}, -\frac{1}{\sqrt{2}}\right)$

D. $\left(\frac{1}{2}, -\sqrt{2}\right)$

Answer: D

Watch Video Solution

22. The locus of the centre of a circle which touches the line $x\cos\alpha + y\sin\alpha = p$ and circle $(x-a)^2 + (y-b)^2 = c^2$ is

A. $(x-a)^2 + (y-b)^2 = (x\cos\alpha + y\sin\alpha - p \pm c)^2$

B. $(x-a)^2 + (y-b)^2 = (x\cos\alpha - y\sin\alpha - p \pm c)^2$

C. $(x-a)^2 + (y-b)^2 = (x\cos\alpha + y\sin\alpha - p \pm c)^2$

D. $(x-a)^2 + (y-b)^2 = (x\cos\alpha + y\sin\alpha - p \pm c)^2$

Answer: A

View Text Solution

23. The locus of the centre of a circle which touches externally the circle $x^2 + y^2 = a^2$ and $x^2 + y^2 = 4ax$ externally has the equation.

A. $x^2 - 6x - 10y + 4 = 0$

B. $x^2 - 10x - 6y + 14 = 0$

C. $y^2 - 6x - 10y + 14 = 0$

D. $x^2 - 6x - 10y + 14 = 0$

Answer: D

Watch Video Solution

24. The locus of the centre of a circle which touches externally the circle $x^2 + y^2 = a^2$ and $x^2 + y^2 = 4ax$ externally has the equation.

A. $12(x - a)^2 - 4y^2 = 3a^2$

B. $9(x - a)^2 - 5y^2 = 2a^2$

C. $8x^2 - 3(y - a)^2 = 9a^2$

D. none

Answer: A

Watch Video Solution

25. The locus of the centre of a circle which touches externally the circle $x^2 + y^2 - 6x - 6y + 14 = 0$ and also touches the y-axis is given by the equation.

A. $x^2 - 6x - 10y + 14 = 0$

B. $x^2 - 10x - 6y + 14 = 0$

C. $x^2 - 6x - 10y + 14 = 0$

D. $y^2 - 10x - 6y + 14 = 0$

Answer: D

Watch Video Solution

26. The centres of those circles which touch the circle, $x^2 + y^2 - 8x - 8y - 4 = 0$ externally and also the x-axis, lie on

A. a circle

B. an ellipse which is not a circle

C. a hyperbola

D. a parabola

Answer: D

Watch Video Solution

27. A circle touches the x-axis and also touches the circle with centre at (0,3) and radius 2. The locus of the centre of the circle is

A. an ellipse

B. a circle

C. a hyperbola

D. a parabola

Answer: D

Watch Video Solution

28. Let C be the circle with centr at (1,1) and radius =1. If T is the circle centred at (0,y), passing through origin and touching the circle C externally, then the radius of T is equal to

A. $\frac{1}{2}$

B. $\frac{1}{4}$

C. $\frac{\sqrt{3}}{\sqrt{2}}$

D. $\frac{\sqrt{3}}{2}$

Answer: B

Watch Video Solution

29. The circels whose equations are $x^2 + y^2 + 10x - 2y + 22 = 0$ and $x^2 + y^2 + 2x - 8y + 8 = 0$ touch each other. The circle which touch both circles at the point of contact and passing through (0,0) is

A. $9\left(x^2 + y^2\right) - 15x - 20y = 0$

B. $5\left(x^2+y^2\right)-18x-80y=0$

C. $7\left(x^2+y^2\right)-18x-80y=0$

D. $x^2+y^2-9x-40y=0$

Answer: C

View Text Solution

30. The number of common tangent to the circles $x^2+y^2+2x+8y-23=0, x^2+y^2-4x-10y+19=0$ is

A. 4

B. 2

C. 3

D. 1

Answer: C

Watch Video Solution

31. The number of common tangents to the circles $x^2 + y^2 = 4, x^2 + y^2 - 8x + 12 = 0$ is

A. 1

B. 2

C. 3

D. 4

Answer: C

Watch Video Solution

32. The number of common tangents to the circles $x^2 + y^2 = 0, x^2 + y^2 + x = 0$ is

A. 2

B. 1

C. 4

D. 3

Answer: D

Watch Video Solution

33. The number of common tangents that can be drawn to the circles $x^2 + y^2 = 1$ and $x^2 + y^2 - 2x - 6y + 6 = 0$ is

A. 1

B. 2

C. 3

D. 4

Answer: D

Watch Video Solution

34. The number of common tangentss to the circles $x^2 + y^2 - 8x + 2y = 0$ and $x^2 + y^2 - 2x - 16y + 25 = 0$ is

A. 1

B. 2

C. 3

D. 4

Answer: B

Watch Video Solution

35. The number of common tangents to the circle $x^2 + y^2 - 4x - 6y - 12 = 0$ and $x^2y^2 + 6x + 18y + 26 = 0$ is

A. 1

B. 2

C. 3

D. 4

Answer: C

Watch Video Solution

36. The condition that the circles $x^2 + y^2 + 2ax + 2by + c = 0, x^2 + y^2 + 2bx + 2ay + c = 0$ to touch each other is

A. $(a + b)^2 = 2c$

B. $(a - b)^2 = 2c$

C. $a + b + c = 0$

D. none

Answer: A

Watch Video Solution

37. The two circles $(x-a)^2+y^2=c$ and $(y-b)^2+x^2=4c$ have only one real common tangent then

A. $a^2+b^2=c$

B. $b^2+c^2=a^2$

C. $a^2+b^2=4c^2$

D. $a^2+b^2=9c$

Answer: A

View Text Solution

38. If the circles $x^2+y^2-6x-8y+c=0$ and $x^2+y^2=9$ have three common tangent then c=

A. 18

B. 19

C. 20

D. 21

Answer: D

Watch Video Solution

39. If only one common tangent can be drawn to the circles $x^2 + y^2 - 2x - 4y - 20 = 0$ and $(x+3)^2 + (y+1)^2 = p^2$, then p=

A. 20

B. 16

C. 49

D. 10

Answer: D

View Text Solution

40. The internal centre of similitude of the two circles $x^2 + y^2 + 6x - 2y + 1 = 0, x^2 + y^2 - 2x - 6y + 9 = 0$ is

A. (1,1/2)

B. (-1/3,-1)

C. (0,5/2)

D. (0,1)

Answer: C

Watch Video Solution

41. The external centre of similitude of the two circles $x^2 + y^2 - 2x - 6y + 9 = 0, x^2 + y^2 = 4$ is

A. (-13,1)

B. (22,-4)

C. (2,6)

D. (6,10)

Answer: C

Watch Video Solution

42. The centres of similutude of the circles $x^2 + y^2 - 2x - 6y + 6 = 0, x^2 + y^2 = 1$ is

A. (1/3,1),(-1,-3)

B. (1/5,-1) (-1,-5)

C. (1/3,1) (1,3)

D. (-1/3,-1) (-1,-3)

Answer: A

Watch Video Solution

43. Find the direct common tangents of the circles $x^2 + y^2 + 22x - 4y - 100 = 0$ and $x^2 + y^2 - 22x + 4y + 100 = 0$

A. 3x+4y-50=0, 7x-24y-250=0

B. 5x+2y-40=0, x-24y-250=0

C. 3x+4y-50=0, 7x+24y-250=0

D. 2x+8y-150=0, 7x-24y-150=0

Answer: A

Watch Video Solution

44. The equations to the transverse common tangents to the circles $x^2 + y^2 - 4x - 10y + 28 = 0, x^2 + y^2 + 4x - 6y + 4 = 0$ are

A. x-1=0, 3x+4y-21=0

B. x-1=0, 3x+4y-5=0

C. y-1=0, 3x+4y-5=0

D. x-1=0, 3x+4y+21=0

Answer: A

View Text Solution

45. P(-1,-3) is a centre of similitude of for the two circles $x^2 + y^2 = 1$ and $x^2 + y^2 - 2x - 6y + 6 = 0$. The length of the common tangent through P to the circles is

A. 2

B. 3

C. 4

D. 5

Answer: B

Watch Video Solution

46. If (2,6) is a centre fo similitude for the circle $x^2 + y^2 = 4$ and $x^2 + y^2 - 2x - 6y + 9 = 0$, the length of the common tangent of circles through is

A. 9

B. 3

C. 6

D. 4

Answer: B

Watch Video Solution

47. For the circles $x^2 + y^1 = 1$ and $(x-1)^2 + (y-3)^2 = 4$ the line 4x-3y=5 is a

A. common chord

B. direct common tangent

C. transverse common tangent

D. common tangent

Answer: B

View Text Solution

48. For the circles $x^2 + y^2 + 4x + 3y + 2y = 4 = 0, x^2 + y^2 + 4x - 2y + 4 = 0$ the line $3x$ is a

A. common chord

B. direct common tangent

C. transverse common tangent

D. common tangent

Answer: B

View Text Solution

49. The common tangents to the circles $x^2 + y^2 - 6x = 0, x^2 + y^2 + 2x = 0$ from

A. equilateral triangle

B. isosceles triangle

C. righta angled triangle

D. none

Answer: A

Watch Video Solution

Exercise 2(Special Type Questions)

1. I : The equation of the circles cencentric with $x^2 + y^2 - 2x + 8y - 23 = 0$ and passing through (2,3) is $x^2 + y^2 - 2x + 8y - 33 = 0$

II. The equation of the circles passing through the points (1,1), (2,-1),(3,2) is

$x^2 + y^2 - 5x + y + 4 = 0$

A. only I is true

B. only II is true

C. both I and II are true

D. neither I nor II true

Answer: C

View Text Solution

2. The nearest point on the circle $x^2 + y^2 - 6x + 4y - 12 = 0$ from $(-5, 4)$ is

A. only I is true

B. only II is true

C. both I and II are true

D. neither I nor II true

Answer: B

Watch Video Solution

3. I. The locus of the point of intersection of two perpendicular tangents to the circle $x^2 + y^2 = a^2$ is $x^2 + y^2 = 3a^2$.

II. The locus of the point of intersection of the perpendicular tangents to the circles $x^2 + y^2 = a^2, x^2 + y^2 = b^2$ is $x^2 + y^2 = a^2 + b^2$

A. only I is true

B. only II is true

C. both I and II are true

D. neither I nor II true

Answer: C

View Text Solution

4. I. The locus of the point from which the length of the tangents to the two circles $x^2 + y^2 + 4x + 3 = 0, x^2 + y^2 - 6x + 5 = 0$ are in the ratio 2:3 is a circles with centre (-6,0)

II. The length of the chord x=3y+13 of the circle $x^2 + y^2 - 4x + 4y + 3 = 0$ is $\sqrt{10}$.

A. only I is true

B. only II is true

C. both I and II are true

D. neither I nor II true

Answer: B

View Text Solution

5. Statement I The circle $x^2 + y^2 - 6x - 4y - 7 = 0$ touches y-axis

Statement II The circle $x^2 + y^2 + 6x + 4y - 7 = 0$ touches x-axis

Which of the following is a correct statement ?

A. Both I and II are true

B. Neither I nor II is true

C. I is true, II is false

D. I is false, II is true

Answer: D

Watch Video Solution

Set 2

1. If a,b,c, are the radii of the circles $x^2 + y^2 - 6x - 8y = 0, x^2 + y^2 + 4x - 6y - 3 = 0, x^2 + y^2 + 6x + 8y -$ then the ascending order of a,b,c is

A. a,b,c

B. b,c,a

C. a,c,b

D. b,a,c

Answer: D

View Text Solution

2. If the equation of the circle passing throught the points (3,4), (3,2), (1,4) is $x^2 + y^2 + 2ax + 2by + c = 0$ then the ascending order of a,b,c is

A. a,b,c

B. b,c,a

C. a,c,b

D. b,a,c

Answer: A

View Text Solution

3. If a,b,c are the lengths of tangents from (0,0) to the circles $x^2+y^2-3x-4y+1=0, x^2+y^2+4x-6y+4=0, x^2+y^2-6x-1$ then the ascending order of a,b,c is

A. a,b,c

B. b,c,a

C. a,c,b

D. b,a,c

Answer: B

View Text Solution

4. If P_1, P_2, P_3 are the perimeters of the three circles $x^2+y^2+8x-6y=0, 4x^2+4y^2-4x-12y-186=0$ and x^2+y^2-6 respectively, then

A. $P_1 < P_2 < P_3$

B. $P_1 < P_3 < P_2$

C. $P_3 < P_2 < P_1$

D. $P_2 < P_3 < P_1$

Answer: C

Watch Video Solution

Set 3

1. Match the following

I. $x^2 + y^2 - 4x + 6y - 11 = 0$	a) (3, 4)
II. $x^2 + y^2 - 6x - 8y + 12 = 0$	b) (− 1, − 1)
III. $x^2 + y^2 + 2x + 2y - 5 = 0$	c) (2, − 3)

A. a,b,c

B. b,c,a

C. c,a,b

D. a,c,b

Answer: C

Watch Video Solution

2. Match the following

I. $x^2 + y^2 + 4x - 6y - 12 = 0$	a) 3
II. $x^2 + y^2 - 4x - 2y - 4 = 0$	b) 5
III. $x^2 + y^2 + 6x + 8y - 96 = 0$	c) 11

A. a,b,c

B. b,c,a

C. c,a,b

D. a,c,b

Answer: C

View Text Solution

3. Match the following

I. $x^2 + y^2 = 25, 2x - 3y + 5 = 0$	a) $(2, -3)$
II. $x^2 + y^2 - 5x + 8y + 6 = 0, x - 2y + 22 = 0$	b) $(6, 8)$
III. $x^2 + y^2 - 6x - 8y + 5 = 0, 3x + 4y - 45 = 0$	c) $(-2, 3)$

A. a,b,c

B. b,c,a

C. c,a,b

D. a,c,a

Answer: B

View Text Solution

4. For the circle C with the equation $x^2 + y^2 - 16x - 12y + 64 = 0$ match the list-I with the list-II given below:

List - I	List - II
i) The equation of the polar of $(-5, 1)$ with respect to C	a) $y = 0$
ii) The equation of the tangent at $(8, 0)$ to C	b) $y = 6$
iii) The equation of the normal at $(2, 6)$ to C	c) $x + y = 7$
iv) The equation of the diameter of C through $(8, 12)$	d) $12x + 5y = 98$
	e) $x = 8$

A. I) d. ii). b, iii). a, iv). c

B. I) d. ii). a, iii). b, iv). e

C. I) c. ii). d, iii). a, iv). b

D. I) c. ii). e, iii). b, iv). a

Answer: C

View Text Solution

5. Given the circle C with the equation $x^2 + y^2 - 2x + 10y - 38 = 0$

Match the List-I with the List-II given below concening C:

List-I	List-II
i) The equation of the polar of $(4, 3)$ with respect to C	a) $y + 5 = 0$
ii) The equation of the tangent at $(9, 5)$ on C	b) $x = 1$
iii) The equation of the normal at $(-7, -5)$ on C	c) $3x + 8y = 27$
iv) The equation of the diameter of C passing through $(1, 3)$	d) $x + y = 3$
	e) $x = 9$

A. I) c. ii). a, iii). e, iv). b

B. I) d. ii). e, iii). a, iv). B

C. I) c. ii). e, iii). a, iv). b

D. I) d. ii). b, iii). a, iv). e

Answer: A

View Text Solution

Set 4

1. A: The equation of the circle (2,-3), (-3,2) as ends of a diameter is $x^2 + y^2 + x + y - 12 = 0$

R: The equation of the circle having the line segment joining $A(x_1, y_1)$ and $B(x_2, y_2)$ as diameter $(x - x_1)(x - x_2) + (y - y_1)(y - y_2) = 0$

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true and R is not the correct explanation of A

C. A is true but R is false

D. A is false but R is false

Answer: A

Watch Video Solution

2. A: length of the intercept made by the circle $x^2 + y^2 - 12 + 14y + 11 = 0$ on x-axis is 10.

R: The length of the intercept made by the circle S=0 on y-axis is $\sqrt[2]{f^2 - c}$.

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true and R is not the correct explanation of A

C. A is true but R is false

D. A is false but R is false

Answer: B

View Text Solution

3. A: The polar of (2,3) with respect to the circle $x^2 + y^2 - 4x - 6y + 5 = 0$ is $2x + 3y = 0$

R: The polar of (x_1, y_1) with respect to the circle $S = 0$ is $S_1 = 0$

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true and R is not the correct explanation of A

C. A is true but R is false

D. A is false but R is false

Answer: D

Watch Video Solution

4. A: The angle between the tangent drawn from origin to the circle $x^2 + y^2 - 14x + 2y + 25 = 0$, is $\pi/2$.

R: If θ is the angle between the pair of tangents drawn from (x_1, y_1) to the circle S=0 of the radius r then $\theta \tan \frac{\theta}{2} = \frac{r}{\sqrt{S_1}}$

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true and R is not the correct explanation of A

C. A is true but R is false

D. A is false but R is false

Answer: A

View Text Solution