MATHS

BOOKS - JEEVITH PUBLICATIONS MATHS (KANNADA ENGLISH)

CIRCLES

Exercise One Marks Questions With Answers

1. Find the equations of circle with centre at $(2, 4)$ and radius $= 5$.

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2. Find the equations of circle with centre at $(1, 2)$ and passing through $(4, 6)$

3. Find h and k if $kx^2 + 2hxy + 4y^2 - 2x + 3y - 7 = 0$ represents a circle

4. Find the equation of circle whose centre is at $(a, 0)$ and touching y - axis.

5. Write the condition for the circle $x^2 + y^2 + 2gx + 2fy + c = 0$ to touch both the axes.

6. Find the area of the circle whose parametric equations $x = 3 + 2\cos\theta$ and $y = 1 + 2\sin\theta$.

7. Write the condition (in terms of g,f,c) under which $x^2 + y^2 + 2gx + 2fy + c = 0$ becomes an point circle.

8. Find the equation of the directrix of the parabola $y^2 = -8x$.

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9. Find the co-ordinates of the end of points of the latus rectum of the parabola $y^2 = 12x$.

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10. Find the focus of the parabola $x^2 + 16y = 0$.

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11. Find the eccentricity of the ellipse $\dfrac{x^2}{9} + \dfrac{y^2}{4} = 1$

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12. Find the length of semi latus rectum of the ellipse $\dfrac{x^2}{16} + \dfrac{y^2}{12} = 1$

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13. Find the eccentricity of the ellipse $25x^2 + 16y^2 = 400$.

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Exercise Two Marks Questions With Answers

1. Find the equation of circle whose diameters are $x + y = 6$ and $x + 2y = 4$ and whose radius is 10 units.

2. Find the equation of circle with centre at $(6, 1)$ and touching the line $5x + 12y - 3 = 0$

3. Find the equation of circle having $(4, 2)$ and $(-5, 7)$ as the extremities of a diameter.

4. Find the centre of the circle passing through $(0, 0)(3, 0)$ and $(0, 5)$

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5. Find the centre of the circle $3x^2 + 3y^2 - 6x - 12y - 2 = 0$

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6. If the radius of the circle $x^2 + y^2 + 4x - 2y - k = 0$ is 4 units find k.

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7. If one end of the diameter of the circle $x^2 + y^2 - 2x + 6y - 3 = 0$ is $(+4, -5)$, find the co-ordinates of the other end.

8. Show that $x = 3y = 0$ is a diameter of the circle $x^2 + y^2 - 6x + 2y + 34 = 0$.

9. Find the equation of the diameter of the circle $x^2 + y^2 - 8x + 2y - 18 = 0$, which when produced passes through $(-3, +2)$.

10. Find the equation of the circle with centre at $(1, -2)$ and passing through the centre of the circle $x^2 + y^2 - 4x + 1 = 0$

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11. Find the length of the chord of the circle $x^2 + y^2 + 6x - 2y - 1 = 0$ intercepted by x - axis.

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Exercise Five Marks Questions With Answers

1. Find the equation of the circle with touching both the axes and passing though the point $(2, 9)$

2. Find the equation of circle passing through the points $(5, 3), (1, 5)$ and $(3, -1)$

3. Prove that the points $(2, 0), (-2, 0), (-1, 3)$ and $(1, -1)$ are concyclic.

4. Show that the circle touch each other:

$$x^2 + y^2 - 6x - 2y + 1 = 0 \text{ and } x^2 + y^2 - 2x - 8y + 13 = 0$$

5. Find the length of the chord intercepted by the circle

$$x^2 + y^2 - 8x - 6y = 0 \text{ and the line } x - 7y - 8 = 0$$

6. Find the equation of the circle passing through the

points $(4, 1)$ and $(6, 5)$ and whose centre is on the line

$$4x + y = 16$$

7. Find the equation of the circle passing through $(0, 0)$ and making intercept a and b on the coordinates axes.

1. Find the points of the parabola $y^2 = 2x$ where the focal distance is $\dfrac{5}{2}$.

2. Find the equations of directrices of the ellipse $25x^2 + 4y^2 = 100$.

3. Find the centre of the ellipse whose vertices are $(2, -2) \& (2, 4)$ Also find the length of major axis.

4. Find the eccentricity of the ellipse if its minor axis is equal to the distance between the foci.

5. Find the eccentricity of the ellipse $(a < b)$ if the distance between the directrices is 5 and distance between the foci =

4.

6. Find the equation of ellipse $(a < b)$ if the minor axis is of length 6 and distance between foci = 8.

7. Find the sum of the focal distance of any point on the ellipse $4x^2 + 9y^2 = 36$.

8. Find the foci of the hyperbola $9x^2 - 4y^2 = 36$.

9. Find the length of latus rectum & directrices of the hyperbola $9y^2 - 16x^2 = 144$.

10. Find the eccentricity of the hyperbola if the distance between the foci is 10 and length of L.R. is 9/2.

11. Find the equation of hyperbola in the standard form given that length of L.R. $= \dfrac{14}{3} \& e = \dfrac{4}{3}$.

12. Find the equation of hyperbola in the form $\dfrac{x^2}{a^2} - \dfrac{y^2}{b^2} = 1$, given that length of transverse axis = 10 and eccentricity = 2.

13. If e_1 and e_2 are the eccentricities of a hyperbola and its conjugate then prove that $\dfrac{1}{e_1^2} + \dfrac{1}{e_2^2} = 1$.