



MATHS

BOOKS - JBD PUBLICATION

CONIC SECTIONS



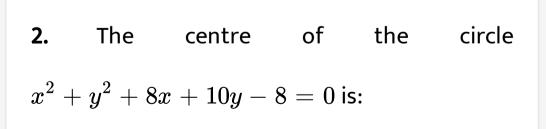
1. Latus rectum of the parabola $x^2 = 4ay$ is:

B.4a

C. 2a

D. None of these

Answer:



A. (4,5)

B. (-4,-5)

C. (5,4)

D. (-5,-4)

Answer:

3. The focus of the parabola
$$y^2-x-2y+2=0$$
 is:
A. $\left(rac{1}{4},0
ight)$

B. (1,2)

$$\mathsf{C}.\left(\frac{5}{4},1\right)$$
$$\mathsf{D}.\left(\frac{3}{4},\frac{5}{2}\right)$$

Answer:

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4. The vertex of the parabola $y^2 = 4a(x+a)$

is:

B. (-a,0)

C. (a,0)

D. (0,a)

Answer:

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5. The equation of the parabola with the focus

(3,0) and directrix x+3=0 is

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

$$\mathsf{B}.\,y^2=\,-\,3x$$

C.
$$y^2 = 12x$$

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

Answer:



6. The equation of the parabola with focus at

(0, 3) and the directrix y + 3 = 0 is

A.
$$y^2=12x$$

 $\mathsf{B.}\,x^2=12y$

C.
$$x^2 = -12y$$

D.
$$y^2 = -12x$$

Answer:



7. If the parabola $y^2=4ax$ passes through (3,

2), then the length of its latus rectum is

B.
$$\frac{1}{3}$$

C. $\frac{4}{3}$
D. $\frac{2}{3}$

Answer:



8. The foci of the ellipse $9x^2 + 4y^2 = 36$ are

A.
$$(~\pm~5,0)$$

B.
$$(0, -5)$$

$$\mathsf{C.} (\, -5, 0)$$

 $\mathsf{D.}\,(0,\ \pm 5)$

Answer:



9. The foci of the hyperbola $9x^2 - 16y^2 = 144$

are

A.
$$(~\pm~5,~0)$$

 $\texttt{B.}\,(\,\pm\,4,\,0)$

C. $(0, \pm 4)$

 $\mathsf{D.}\,(0,\ \pm 5)$

Answer:

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10. The equation of the circle passing through the foci of the ellipse $\frac{x^2}{16} + \frac{y^2}{9} = 1$, and having center at (0,3) is **B.**4

C. 3

D. None of these

Answer:

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11. In an ellipse, the distance between its foci is

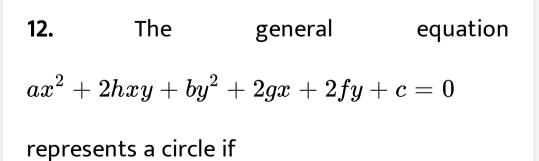
6 and minor axis is 8. Then, its eccentricity is

A.
$$\frac{3}{5}$$

B.
$$\frac{5}{3}$$

C. $\frac{4}{5}$
D. $\frac{5}{4}$

Answer:



A. a=b, h=0

B. a=b=0, h ne 0

C.
$$a
eq b, h = 0$$

D. None of these

Answer:





A. (-1,0)

B. (0,1)

C. (1,0)

D. None of these

Answer:

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14. The equation of circle having centre (0,0)

and area 154 sq. units.

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

$$\mathsf{B.}\,x^2+y^2=49$$

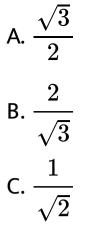
$$\mathsf{C.}\,x^2+y^2=20$$

D. None of these

Answer:



15. The eccentricity of the ellipse, if the minor axis is equal to the distance between the foci

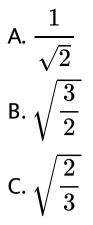


D. None of these

Answer:



16. The eccentricity of the hyperbola whose latus rectum is half of its transverse axis is:



D. None of these

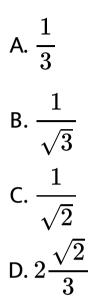
Answer:



17. The length of the major axis of the ellipse

 $rac{x^2}{a^2}+rac{y^2}{b^2}=$ 1, is three times the length of

minor axis, it eccentricity is



Answer:



18. If (2,4) and (10,10) are the ends of a latus rectum of an ellipse with the eccentricity $\frac{1}{2}$, then the length of semi-major axis is:

A.
$$\frac{20}{3}$$

B. $\frac{15}{3}$
C. $\frac{40}{3}$

D. None of these

Answer:



19. If the circles $x^2+y^2=9$ and $x^2+y^2+8y+c=0$ touch each other, then c is equal to:

A. -15

B. 15

C. 16

D. None of these

Answer:

20. If the circle $x^2 + y^2 + 2ax + 8y + 16 = 0$

touches x axis, then the vlaue of a is:

A. ± 1

 $\mathsf{B.}\pm4$

 $C.\pm 8$

D. None of these

Answer:

21. If (x,3) and (3,5) are the extremities of a 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=3, y=1

D. None of these

Answer:



22. If (-3,2) lies on the circle $x^2 + y^2 + 2gx + 2fy + c = 0$, which is concentric with the circle $x^2 + y^2 + 6x + 8y - 5 = 0$ then c is equal to:

A. 11

B. -11

C. 20

D. None of these

Answer:

23. The equation
$$rac{x^2}{2-\lambda}+rac{y^2}{\lambda-5}+1=0$$

represents an ellipse if:

A. $\lambda > 5$

B. $2 < \lambda < 5$

 $\mathsf{C}.\,\lambda>2$

D. None of these

Answer:

24.

The

 $16x^2 + y^2 + 8xy - 74x - 78y + 212 = 0$

represents:

A. a circle

B. a parabola

C. an ellipse

D. a hyperbola

Answer:

25. The latus rectum of parabola $9x^2 - 6x + 36y + 19 = 0$ is:

A. 2

B.4

C. 6

D. None of these

Answer:

26. The latus rectum of the ellipse

 $16x^2 + y^2 = 16$ is:

A.
$$\frac{1}{2}$$

B. $\frac{\sqrt{5}}{2}$
C. $\frac{\sqrt{3}}{2}$

D. None of these

Answer:



27. The distance between the directrices of the

ellipse
$$\displaystyle rac{x^2}{4} + \displaystyle rac{y^2}{9} = 1$$
 is:

A.
$$\frac{16}{\sqrt{3}}$$

B.
$$\frac{21}{\sqrt{5}}$$

C.
$$\frac{18}{\sqrt{5}}$$

D. None of these

Answer:

28. The length of the latus rectum of hyperbla

$$rac{x^2}{9}-rac{y^2}{16}=1$$
 is:
A. $rac{4}{3}$
B. $rac{3}{4}$
C. $rac{32}{3}$

D. None of these

Answer:

29. The eccentricity of the conic

$$9x^2 - 16y^2 = 144$$
 is:
A. $\frac{5}{4}$
B. $\frac{4}{3}$
C. $\frac{4}{5}$
D. None of these

Answer:

30. The foci of the hyperbola $9x^2 - 16y^2 = 144$

are

A.
$$(~\pm~4,~0)$$

B.
$$(0, \pm 4)$$

C.
$$(~\pm~5,~0)$$

D. None of these

Answer:



1. In each of the following find the equation of the circle with centre $\left(\frac{1}{2}, \frac{1}{4}\right)$ and radius $\frac{1}{12}$.

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2. Find the equation of the circle with centre

(2, 2) and passes through the point (4, 5).



3. Find the equation of a circle whose centre is

(3,-2) and has an area of 154 squares units.



4. Find the equation of a circle having centre at point C(-2,3) and touching the straigth line 3x-4y-2=0

5. In each of the following find the centre and

radius of the circles

$$\left(x+rac{3}{2}
ight)^2 + \left(Y-rac{5}{2}
ight)^2 = rac{289}{4}.$$



6. In each of the following circles, find the centre and radius.

$$x^2 + y^2 - 8x + 10y - 12 = 0$$

7. Does the point (-2.5, 3.5) lie inside, outside or

on the circle $x^2+y^2=25$?



8. In each of the following find the coordinates of the focus , axis of the parabola , the equation of directrix and the length of the latus rectum .

$$y^2=\ -8x$$

9. Find the equation of the parabola that satisfies given conditions : Vertex (0, 0), focus (-2,0)

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10. Find the coordinates of a point on the parabola $y^2 = 18x$, where the ordinate is 3 times the abscissa.



11. Find the equation for ellipse that satisfies

the given conditions

Vertices $(0, \pm 13), \text{ foci } (0, \pm 5)$

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12. Find the eqation for the ellipse that satisfies the given conditions :

Length of major axis 26 , foci $(\pm 5, 0)$

13. Find the equation for the elllipse that satisfy the given conditions:

 $Foci(\pm 3, 0)$, a=4.



14. Find the equations of the hyperbola satisfying the given conditions.

Vertices $(0, \pm 3)$ foci $(0, \pm 5)$

15. Find the equations of a circle having radius 5 units and the centre as the point of intersection of the straight lines 2x-y-5=0 and 3x+2y=4.

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16. LL' is the latus rectum of a parabola $x^2=-8y$. Find the coordinates of points L and L'.

17. Find the area of the triangle formed by the lines joining the vertex of the parabola $x^2 = 12y$ to the ends of its latus rectum.



18. Find the equation of a hyperbola whose vertices lie on y-axis, centre is at the origin, the distance between the foci is 16 and eccentricity is $\sqrt{2}$.

19. Find the equation of the hyperbola satisfying the given conditions. Foci $(\pm 3\sqrt{5},0)$ the latus rectum is of length 8.

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20. In each of the following, find the equations

of the hyperbola satisfying the given conditions.

vertices are $(0, \pm 5)$, e= $\frac{5}{2}$.

21. The straight line y=mx+1 is a tangent to the parabola $y^2 = 4x$, the find the value of m.



22. Find the length of the line segment joining the vertex of the parabola $y^2 = 4ax$ and a point on the parabola that makes an angle θ with x-axis.

23. Find the equation of the ellipse with vertices at $(\pm 5, 0)$, foci at $(\pm 4, 0)$ and centre at (0,0).

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24. Find the equations of the ellipse whose length of the major axis is 20 and foci are $(0, \pm 5).$

25. Find the coordinates of the foci and the vertices, the eccentricity, the length of the latus rectum of the hyperbola: $y^2 - 16x^2 = 16.$

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26. Find the coordinates of foci, vertices, eccentricity, latus rectum and major and minor axis of the ellipse $\frac{x^2}{100} + \frac{y^2}{25} = 1.$

27. Verify that the locus of a point P which moves so that the sum of its distance from the points $S_1(-4,0)$ and $S_2(4,0)$ is 10, is an ellipse.

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28. Find the equation of an ellipse whose major axis is along the y-axis and which passes through the points (2,2) and (1,4).

29. Find the equation of the locus of all points such that the difference of their distances from (4, 0) and (-4, 0) is always equal to 2.

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30. Find the coordinates of the foci and the vertices, the ecentricity and the length of the latus rectum of the hyperbolas :

$$5y^2 - 9x^2 = 36$$





31. Find the length of latus rectum of the

ellipse.

$$rac{x^2}{16} + rac{y^2}{9} = 1.$$



32. Find the eccentricity, the coordinates of the foci, the lengths of transverse and conjugate axes and the equations of

directrices of the hyperbola.

$$rac{y^2}{36} - rac{x^2}{64} = 1.$$

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33. Show that a conic whose foci are $(\pm 5, 0)$ and one of the directrix has equations $x = \frac{36}{5}$ is an ellipse. Hence, find the equations.

34. Find the equation of the circle which passes through points (2,-2) and (3,4) and whose centre lies on the line x + y = 2.



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35. If S and S' are the foci of \frac{x^2}{16} + \frac{y^2}{25} = 1, then show that PS+PS'=10, where P is any point on the ellipse.
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