



## MATHS

# BOOKS - VIKRAM PUBLICATION ( ANDHRA PUBLICATION)

## **QUESTION PAPER -2019**

Very Short Answer Type Questions

1. Write the parametric equations of the circle

$$2x^2 + 2y^2 = 7.$$

**2.** Find the value of k if the points (1, 3) and (2, k) are conjugated with respect to the circle  $x^2 + y^2 = 35$ .



3. Find the equation of radical axis of the circles  $x^2+y^2+4x+6y-7=0, 4ig(x^2+y^2ig)+8x+12y-9=0$ 

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**4.** Find the equation of the normal to the parabola  $y^2 = 4x$  which is parallel to y - 2x + 5 = 0.

5. If the eccentricity of the hyperbola is  $\frac{5}{4}$ , then find the

eccentricity of conjugate hyperbola.

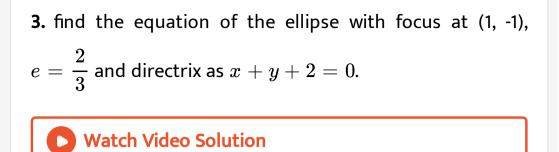
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6. Evaluate : 
$$\int \frac{1 + \cos^2 x}{1 - \cos 2x} dx$$
, on  $\subset R / \{n\pi : n \in z\}$   
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7. Evaluate :  $\int \frac{1}{x \log x [\log(\log x)]} dx$ , on  $(1, \infty)$ .  
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8. Evaluate : 
$$\int_{0}^{a} (\sqrt{a} - \sqrt{x})^{2} dx.$$
  
9. Find the value of the integral  
$$\int_{0}^{\pi/2} \cos^{11} x dx$$
  
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10. Find the general solution of : 
$$\frac{dy}{dx} = \frac{2y}{x}$$
  
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**1.** Find the equation of the circle which cuts orthogonally the circle  $x^2 + y^2 - 4x + 2y - 7 = 0$  and having the centre at (2, 3).

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2. The lilne y=mx+x and the circle  $x^2+y^2=a^2$ intersect at A and B. If  $AB=2\lambda$ , then show that :  $c^2=\left(1+m^2
ight)\left(a^2-\lambda^2
ight).$ 



4. Find the equations of tangents to the elipse  $2x^2 + 3y^2 = 11$  at the points whose ordinate is 1.

5. Find the foci, eccentricity, equations of the directrix, length of latus rectum of the hyperbola  $x^2 - 4y^2 = 4$ .



6. Find 
$$\int_{0}^{2\pi} \sin^4 x \cos^6 x dx$$
  
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7. Solve the differential equation :  
 $\cos x \cdot \frac{dy}{dx} + y \sin x = \sec^2 x$ .  
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Long Answer Type Questions

**1.** Show that the points (9, 1), (7, 9), (-2, 12), (6, 10) are concyclic and find the equation of the circle on which they



2. Show that the four common tangents can

be drawn for the circles given by

$$x^2+y^2-14x+6y+33=0$$
 \_\_\_\_(1)

and  $x^2 + y^2 + 30x - 2y + 1 = 0$  \_\_\_\_(2)

and find the internal and external centres

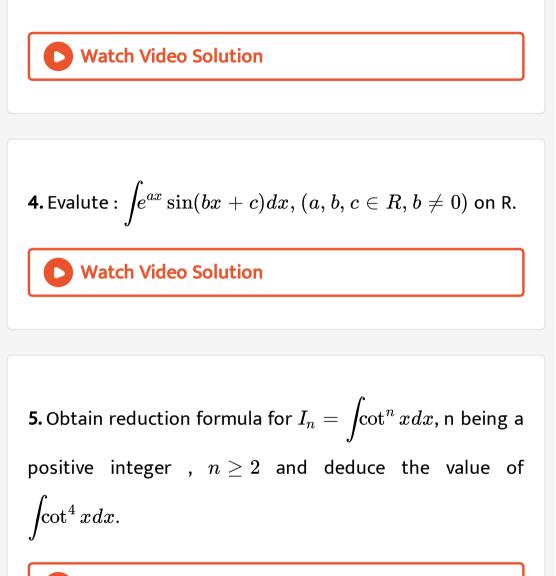
of similitude.



**3.** From an external point P tangents are drawn to the parabola y(2) = 4ax and these tangents make angles

 $\theta_1, \theta_2 with its a \xi ssucht$  cot theta\_(1)+cot theta\_(2)` is a

constant 'a' show that P lies on a horizontal line.



$$\mathbf{6.} \int_0^\pi x \sin^7 x \cos^6 x dx$$

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7. Solve the differential equation :  $rac{dy}{dx} = rac{2y+x+1}{2x+4y+3}$