MATHEMATICS LECTURES FOR IIT-JEE BY MANISH KALIA

Hyperbola

JEE-MAINS (PREVIOUS YEAR)

MCQ-Single Correct

1. A hyperbola passes through the point $P\left(\sqrt{2},\sqrt{3}\right)$ and has foci at $\left(\pm 2,0\right)$. Then the tangent to this hyperbola at P also passes through the point :

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

    (3) $\left(\sqrt{3},\sqrt{2}\right)$ (4) $\left(-\sqrt{2},-\sqrt{3}\right)$ **[2017]**

2. The eccentricity of the hyperbola whose length of the latus rectum is equal to 8 and the length of its conjugate axis is equal half of the distance between its foci, is :

    (1) $\dfrac{4}{\sqrt{3}}$ (2) $\dfrac{2}{\sqrt{3}}$

    (3) $\sqrt{3}$ (4) $\dfrac{4}{3}$ **[2016]**

3. The equation of the hyperbola whose foci are (-2,0) and (2,0) and eccentricity is 2 is given by

    (1) $-x^2+3y^2=3$ (2) $-3x^2+y^2=3$

    (3) $x^2-3y^2=3$ (4) $3x^2-y^2=3$ **[2011]**

4. For the hyperbola $\dfrac{x^2}{\cos^2\alpha}-\dfrac{y^2}{\sin^2\alpha}=1$, which of the following remains constant when α varies?

    (1) eccentricity   (2) directrix

    (3) abscissae of vertices   (4) abscissae of foci   **[2007]**

5. The locus of point $P\left(\alpha,\beta\right)$ moving under the condition that the line $y=\alpha x+\beta$ is a tangent to the hyperbola $\dfrac{x^2}{a^2}-\dfrac{y^2}{b^2}=1$ is

(1) an ellipse

(2) a circle

(3) a parabola

(4) a hyperbola   **[2005]**

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