

Hyperbola - Class XI

Past Year JEE Questions

Questions

Question: 01

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

- A. $\frac{2}{\sqrt{5}}$
- B. $\sqrt{3}$
- C. $\frac{4}{3}$
- D. $\frac{4}{\sqrt{5}}$

Solutions

Solution: 01

Explanation

$$\frac{2b^2}{a} = 8 \text{ and } 2b = \frac{1}{2}(2ae)$$

$$\Rightarrow 4b^2 = a^2e^2$$

$$\Rightarrow 4a^2(e^2 - 1) = a^2e^2$$

$$\Rightarrow 3e^2 = 4 \Rightarrow e = \frac{2}{\sqrt{3}}$$