

- 3 . 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 :

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- (a) $\frac{2}{\sqrt{3}}$ (b) $\sqrt{3}$ (c) $\frac{4}{3}$ (d) $\frac{4}{\sqrt{3}}$

Solution: -

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

$$\Rightarrow 4b^2 = a^2e^2 \Rightarrow 4a^2(e^2 - 1) = a^2e^2 \Rightarrow 3e^2 = 4 \Rightarrow e = \frac{2}{\sqrt{3}}$$