

## Matrices and Determinants - Class XII

### Past Year JEE Questions

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#### Questions

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##### Question: 01

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Let A and B be two invertible matrices of order  $3 \times 3$ . If  $\det(ABA^T) = 8$  and  $\det(AB^{-1}) = 8$ , then  $\det(BA^{-1}B^T)$  is equal to :

- A.  $\frac{1}{4}$
- B. 16
- C.  $\frac{1}{16}$
- D. 1

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#### Solutions

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##### Solution: 01

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##### Explanation

$$|A|^2 \cdot |B| = 8$$

$$\text{and } \frac{|A|}{|B|} = 8 \Rightarrow |A| = 4$$

$$\text{and } |B| = \frac{1}{2}$$

$$\therefore \det(BA^{-1} \cdot B^T) = \frac{1}{4} \times \frac{1}{4} = \frac{1}{16}$$