



## MATHS

### BOOKS - XII BOARDS PREVIOUS YEAR

#### XII Boards

Others

1. If  $A$  is a skew-symmetric matrix of order 3, then prove that  $\det A = 0$ .



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2. Find the value of  $\lambda$ , if four points with position vectors

$3\hat{i} + 6\hat{j} + 9\hat{k}$ ,  $\hat{i} + 2\hat{j} + 3\hat{k}$ ,  $2\hat{i} + 3\hat{j} + \hat{k}$  and  $4\hat{i} + 6\hat{j} + \lambda\hat{k}$  are coplanar.

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3. Find the differential equation representing the family of curves  $y = ae^{bx+5}$ , where  $a$  and  $b$  are arbitrary constants.

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4. Evaluate :  $\int_0^{\frac{\pi}{4}} \frac{\sin x + \cos x}{16 + 9 \sin 2x}$



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5. An open tank with a square base and vertical sides is to be constructed from a metal sheet so as to hold a given quantity of water. Show that the cost of material will be least when depth of tank is half its width. If the cost is to be borne by nearby settled lower income families, for whom water will be provided, what kind of value is hidden in the question



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6. Let  $A = \{ 1,3,5 \}$  . then the number of equivalence relations in A containing (1,3) is ?



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