


Ques No.	Question
1 - 10495	<p>CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 4. DETERMINANTS</p> <p>Using properties of determinants, prove the following</p> $\begin{vmatrix} 3a & -a + b & -a + c \\ a - b & 3b & c - a \\ a - c & b - c & 3c \end{vmatrix} = 3(a + b + c)(ab + bc + ca)$ <p>Click to watch Free Video Solution of this question on DoubtNut</p>
2 - 10519	<p>CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 4. DETERMINANTS</p> <p>Using the properties of determinants, prove that following</p> $\begin{vmatrix} a - b & -c^2 & a^2 \\ a^2 & -c & -a^2 \\ b^2 & c^2 & -a - b \end{vmatrix} = (a + b + c)^3$ <p>Click to watch Free Video Solution of this question on DoubtNut</p>
3 - 10538	<p>CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 4. DETERMINANTS</p> <p>Using properties of determinants, prove that following</p> $\begin{vmatrix} a + b + 2c & a & b \\ c & b + c + 2a & b \\ c & a & c + a + 2b \end{vmatrix} = 2(a + b + c)^3$ <p>Click to watch Free Video Solution of this question on DoubtNut</p>
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CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 4. DETERMINANTS

Using properties of determinants, prove the following

4 - 10582

$$\begin{vmatrix} \alpha & \beta & \gamma \\ \alpha^2 & \beta^2 & \gamma^2 \\ \beta + \gamma & \gamma + \alpha & \alpha + \beta \\ + \gamma \end{vmatrix} = (\alpha - \beta)(\beta - \gamma)(\gamma - \alpha)(\alpha + \beta + \gamma)$$

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5 - 10586

Evaluate $\begin{vmatrix} a + ib & c + id \\ -c + id & a - ib \end{vmatrix}$

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6 - 10587

Find the cofactor of a_{12} in the following $\begin{vmatrix} 2 & -3 & 5 \\ 6 & 0 & 4 \\ 1 & 5 & -7 \end{vmatrix}$

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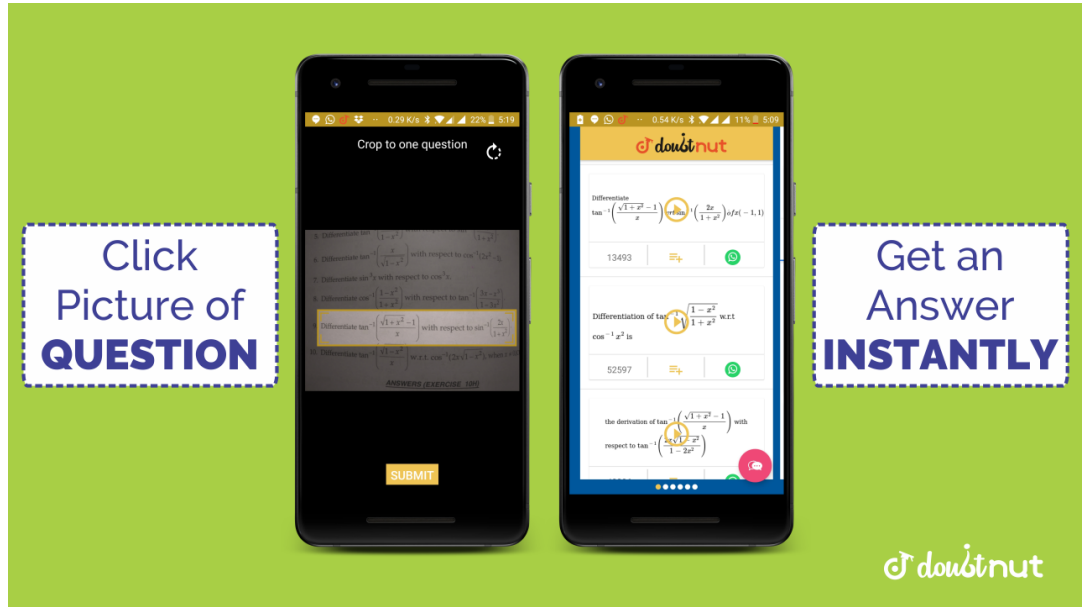
7 - 10603

CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 4. DETERMINANTS

What positive value of x makes the following pair of

determinants equal? $\begin{vmatrix} 2x & 3 \\ 5 & x \end{vmatrix}, \begin{vmatrix} 16 & 3 \\ 5 & 2 \end{vmatrix}$

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CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 4. DETERMINANTS

Using properties of determinants, prove that

8 - 10642

$$\begin{vmatrix} b+c & q+r & y+z \\ c+a & r+p & z+x \\ c+b & p+q & x+y \end{vmatrix} = 2 \begin{vmatrix} a & p & x \\ b & q & y \\ c & r & z \end{vmatrix}$$

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9 - 10648

If $\begin{vmatrix} x+1 & x-1 \\ x-3 & x+2 \end{vmatrix} = \begin{vmatrix} 4 & -1 \\ 1 & 3 \end{vmatrix}$, then write the value of x .

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10 - 10664

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If A_{ij} is the cofactor of the element a_{ij} of the determinant

$$\begin{vmatrix} 2 & -3 & 5 \\ 6 & 0 & 4 \\ 1 & 5 & -7 \end{vmatrix}, \text{ then write the value of } a_{32}, A_{32}.$$

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By using properties of determinants, prove the following

11 - 10695

$$\begin{vmatrix} x+4 & 2x & 2x \\ 2x & x+4 & 2x \\ 2x & 2x & x+4 \end{vmatrix} = (5x+4)(4-x)^2$$

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Prove the following, using properties of determinants:

12 - 10709

$$\begin{vmatrix} a+b+2c & a & b \\ c & b+c+2a & b \\ c & a & c+a+2b \end{vmatrix} = 2(a+b+c)^3$$

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13 - 10711

CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 4. DETERMINANTS

Using properties of determinants, prove the following

$$\begin{vmatrix} a^2 & ab & ac \\ ab & b^2 + 1 & bc \\ ca & cb & c^2 + 1 \end{vmatrix} = 1 + a^2 + b^2 + c^2.$$

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CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 4. DETERMINANTS

Write the value of the following determinant

14 - 10732

$$\begin{vmatrix} a - b & b - c & c - a \\ b - c & c - a & a - b \\ c - a & a - b & b - c \end{vmatrix}$$

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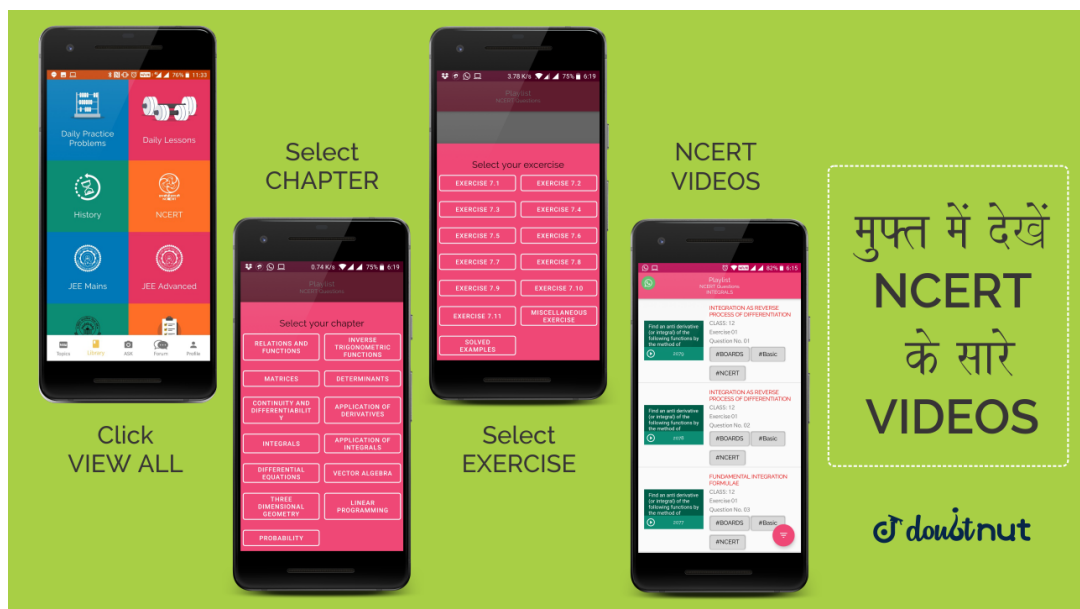
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15 - 10733

Find the value of x, from the following: $\begin{vmatrix} x & 4 \\ 2 & 2x \end{vmatrix} = 0$

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16 - 10742

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Using properties of determinants, show that

$$\begin{vmatrix} b+a & a & a \\ b & c+a & b \\ c & c & a+b \end{vmatrix} = 4abc$$

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17 - 10767

What is the value of the determinant $\begin{vmatrix} 0 & 2 & 0 \\ 2 & 3 & 4 \\ 4 & 5 & 6 \end{vmatrix}$?

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18 - 10778

Using properties of determinants, prove the following:

$$\begin{vmatrix} x & x^2 & 1+px^3 \\ y & y^2 & 1+py^3 \\ z & z^2 & 1+pz^3 \end{vmatrix} = (1+pxyz)(x-y)(y-z)(z-x)$$

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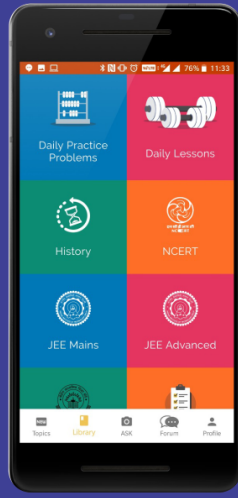
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19 - 10802

Using properties of determinants, prove the following

$$\begin{vmatrix} x & x+y & x+2y \\ x+2y & x & x+y \\ x+y & x+2y & x \end{vmatrix} = 9y^2(x+y)$$

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20 - 10846

Write the value of the determinant

$$\begin{vmatrix} 2 & 3 & 4 \\ 5 & 6 & 8 \\ 6x & 9x & 12x \end{vmatrix}$$

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21 - 10857

If $\begin{vmatrix} x & x \\ 1 & x \end{vmatrix} = \begin{vmatrix} 3 & 4 \\ 1 & 2 \end{vmatrix}$, write the positive value of x

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22 - 10863

What is the value of the following determinant?

$$\Delta = \begin{vmatrix} 4 & a & b + c \\ 4 & b & c + a \\ 4 & c & a + b \end{vmatrix}$$

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23 - 10868

If $A = \begin{bmatrix} 1 & 2 \\ 4 & 2 \end{bmatrix}$, then find the value of k if $|2A| = k|A|$

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24 - 10882

Using properties of determinants, solve the following for x:

$$\begin{vmatrix} x - 2 & 2x - 3 & 3x - 4 \\ x - 4 & 2x - 9 & 3x - 16 \\ x - 8 & 2x - 27 & 3x - 64 \end{vmatrix} = 0$$

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25 - 10894

Using properties of determinants, prove the following:

$$\begin{vmatrix} 1 & 1 + p & 1 + p + q \\ 2 & 3 + 2p & 1 + 3p + 2q \\ 3 & 6 + 3p & 1 + 6p + 3q \end{vmatrix} = 1$$

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26 - 10916

Using properties of determinants, prove that

$$\begin{vmatrix} a & a + b & a + b + c \\ 2a & 3a + 2b & 4a + 3b + 2c \\ 3a & 6a + 3b & 10a + 6b + 3c \end{vmatrix} = a^3$$

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27 - 10944

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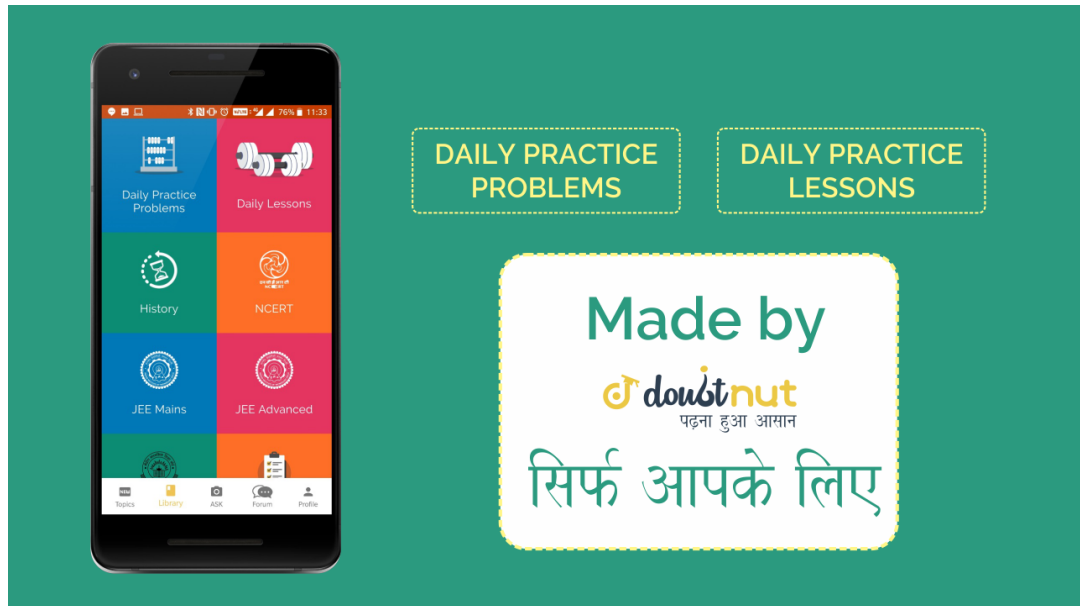
Use product $\begin{bmatrix} 1 & -1 & 2 \\ 0 & 2 & -3 \\ 3 & -2 & 4 \end{bmatrix} \begin{bmatrix} -2 & 0 & 1 \\ 9 & 2 & -3 \\ 6 & 1 & -2 \end{bmatrix}$ to solve the

system of equation: $x - y + 2z = 1$; $2y - 3z = 1$;

$$3x - 2y + 4z = 2$$

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Using properties of determinants, prove that

28 - 10952

$$\begin{vmatrix} -a^2 & ab & ac \\ ba & -b^2 & bc \\ ca & cb & -c^2 \end{vmatrix} = 4a^2b^2c^2$$

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29 - 10960

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Using properties of determinants, show the following:

$$\begin{vmatrix} (b+c)^2 & ab & ca \\ ab & (a+c)^2 & bc \\ ac & bc & (a+b)^2 \end{vmatrix} = 2abc(a+b+c)^3$$

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30 - 10977

$$\text{If } A = \begin{vmatrix} 3 & 10 \\ 2 & 7 \end{vmatrix}, \text{ then write } A^{-1}$$

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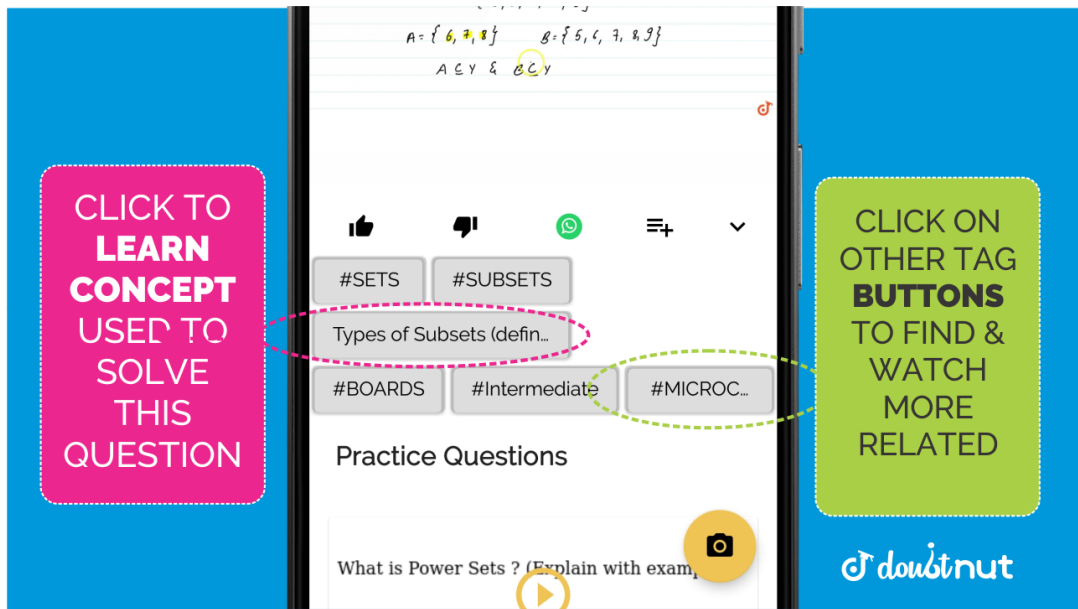
Prove, using properties of determinants:

31 - 11002

$$\begin{vmatrix} y+k & y & y \\ y & y+k & y \\ y & y & y+k \end{vmatrix} = k^2(3y+k)$$

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32 - 11009

$$\text{Evaluate: } \begin{vmatrix} \cos 15^\circ & \sin 15^\circ \\ \sin 75^\circ & \cos 75^\circ \end{vmatrix}$$

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33 - 11017

CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 4. DETERMINANTS

Using properties of determinants, prove the following:

$$\begin{vmatrix} 1 & x & x^2 \\ x^2 & 1 & x \\ x & x^2 & 1 \end{vmatrix} = (1 - x^3)^2$$

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34 - 11038

Write the value of the following determinant:

$$\begin{vmatrix} 102 & 18 & 36 \\ 1 & 3 & 4 \\ 17 & 3 & 6 \end{vmatrix}$$

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35 - 13231

Write the value of

$$\begin{vmatrix} 2 & 7 & 65 \\ 3 & 8 & 75 \\ 5 & 9 & 86 \end{vmatrix}$$

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36 - 13240

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Using properties of determinants, prove the following :

$$\begin{vmatrix} b+c & a & a \\ b & c+a & b \\ c & c & a+b \end{vmatrix} = 4abc$$

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CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 4. DETERMINANTS

Using properties of determinants, prove that

37 - 13250

$$\begin{vmatrix} 2y & y-z-x & 2y \\ 2z & 2z & z-x-y \\ x-y-z & 2x & 2x \end{vmatrix} = (x+y+z)^3$$

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38 - 13266

If $\begin{vmatrix} 2x & 5 \\ 8 & x \end{vmatrix} = \begin{vmatrix} 6 & -2 \\ 7 & 3 \end{vmatrix}$, write the value of x

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Using properties of determinants, prove the following :

39 - 13300

$$\begin{vmatrix} a & a^2 & bc \\ b & b^2 & ca \\ c & c^2 & ab \end{vmatrix} = (a-b)(b-c)(c-a)(bc+ca+ab)$$

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40 - 13301

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Write the value of the determinant $\begin{vmatrix} p & p+1 \\ p-1 & p \end{vmatrix}$.

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41 - 13330

CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 4. DETERMINANTS

Using properties of determinants, prove that

$$\begin{vmatrix} a+x & y & z \\ x & a+y & z \\ x & y & a+z \end{vmatrix} = a^2(a+x+y+z)$$

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42 - 13344

CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 4. DETERMINANTS

Using properties of determinants, solve for

$$x: \begin{vmatrix} a+x & a-x & a-x \\ a-x & a+x & a-x \\ a-x & a-x & a+x \end{vmatrix} = 0$$

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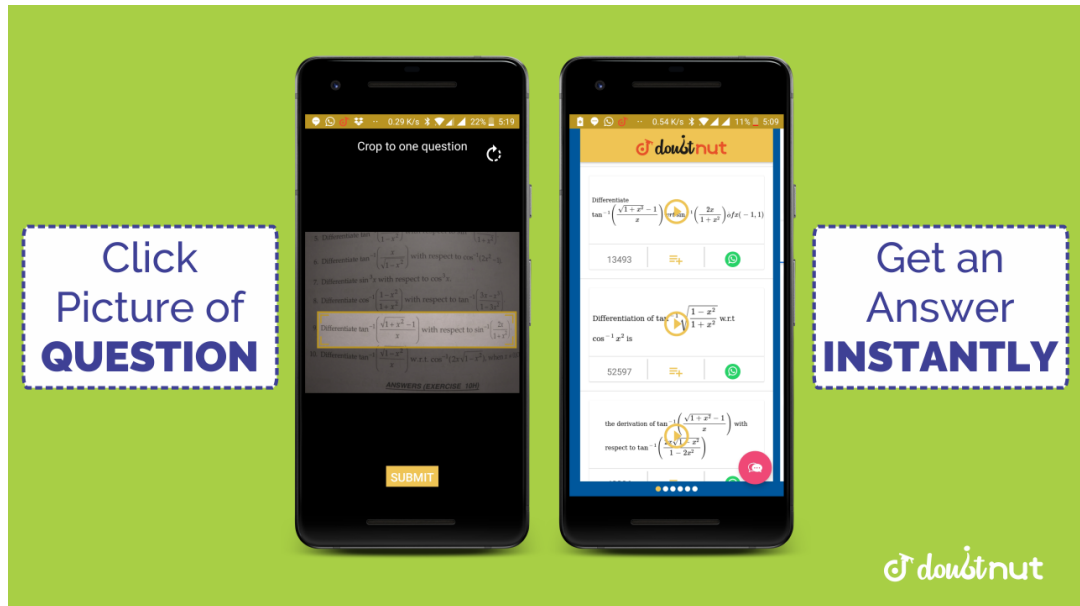
43 - 13383

CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 4. DETERMINANTS

Using properties of determinants, prove that

$$\begin{vmatrix} (a+1)(a+2) & a+2 & 1 \\ (a+2)(a+3) & a+3 & 1 \\ (a+3)(a+4) & a+4 & 1 \end{vmatrix} = -2$$

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Using properties of determinants, prove the following:

44 - 13404

$$\begin{vmatrix} 1 & a & a^2 \\ a^2 & 1 & a \\ a & a^2 & 1 \end{vmatrix} = (1 - a^3)^2$$

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CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 4. DETERMINANTS

Using properties of determinants, show that ABC is isosceles if

45 - 13432

$$\begin{vmatrix} 1 & 1 & 1 \\ 1 + \cos A & 1 + \cos B & 1 + \cos C \\ \cos^2 A + \cos A & \cos^2 B + \cos B & \cos^2 C + \cos C \end{vmatrix} = 0$$

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46 - 13452

CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 4. DETERMINANTS

If $x \in N$ and $\begin{vmatrix} x+3 & -2 \\ -3x & 2x \end{vmatrix} = 8$, then find the value of x

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CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 4. DETERMINANTS

47 - 13470

Find the maximum value of $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1 + \sin \theta & 1 \\ 1 & 1 & 1 + \cos \theta \end{vmatrix}$

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48 - 13476

Prove that $\begin{vmatrix} yz - x^2 & zx - y^2 & xy - z^2 \\ zx - y^2 & xy - z^2 & yz - x^2 \\ xy - z^2 & yz - x^2 & zx - y^2 \end{vmatrix}$ is divisible by $(x + y + z)$, and hence find the quotient.

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49 - 13495

CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 4. DETERMINANTS

If a, b and c are all non-zero and

$\begin{vmatrix} 1+a & 1 & 1 \\ 1 & 1+b & 1 \\ 1 & 1 & 1+c \end{vmatrix} = 0$, then prove that

$$\frac{1}{a} + \frac{1}{b} + \frac{1}{c} + 1 = 0$$

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CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 4. DETERMINANTS

50 - 13500

If
$$\begin{vmatrix} x & \sin\theta & \cos\theta \\ -\sin\theta & -x & 1 \\ \cos\theta & 1 & x \end{vmatrix} = 8,$$
 write the value of x

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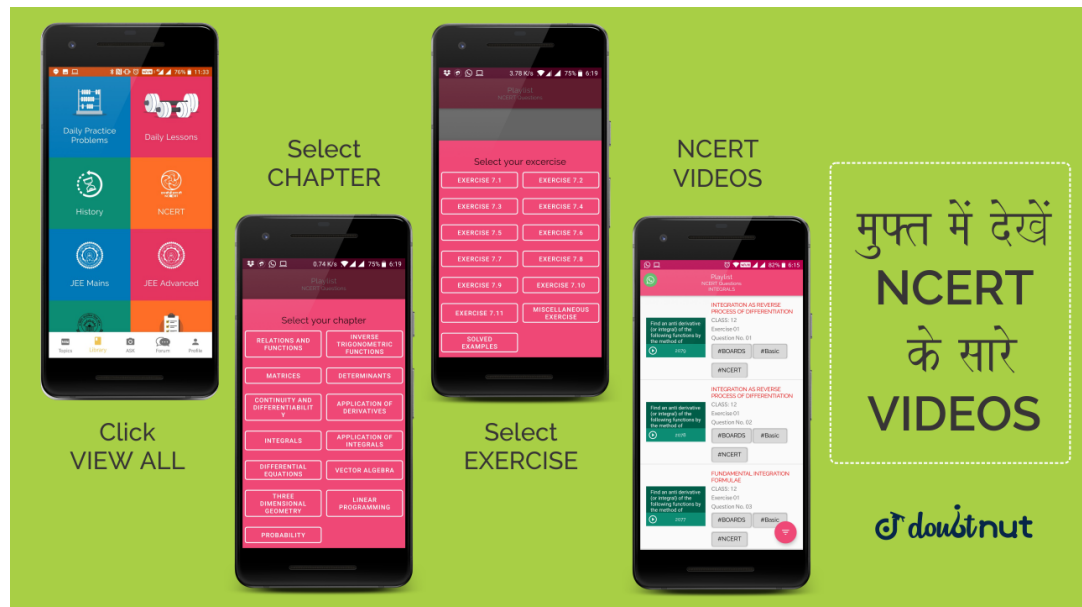
Using properties of determinants, prove the following:

51 - 228017

$$\begin{vmatrix} x & x+y & x+2y \\ x+2y & x & x+y \\ x+y & x+2y & x \end{vmatrix} = 9y^2(x+y)$$

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52 - 228155

$$\begin{vmatrix} 1+x & 1 & 1 \\ 1 & 1+y & 1 \\ 1 & 1 & 1+z \end{vmatrix} = xy + yz + zx + xyz$$

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53 - 228351

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Using properties of determinants, prove that

$$\begin{vmatrix} a^2 + 2a & 2a + 1 & 1 \\ 2a + 1 & a + 2 & 1 \\ 3 & 3 & 1 \end{vmatrix} = (a - 1)^3$$

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Using properties of determinants, prove that

54 - 228353

$$\begin{vmatrix} a^2 + 2a & 2a + 1 & 1 \\ 2a + 1 & a + 2 & 1 \\ 3 & 3 & 1 \end{vmatrix} = (a - 1)^3$$

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CLASS 12 BOARDS: MOST IMPORTANT QUESTIONS - Chapter 4. DETERMINANTS

Using properties of determinants prove that

55 - 1166900

$$\begin{vmatrix} 1 & 1 & 1 + 3x \\ 1 + 3y & 1 & 1 \\ 1 & 1 + 3z & 1 \end{vmatrix} = 9(3xyz + xy + yz + zx)$$

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