MATHS

BOOKS - A N EXCEL PUBLICATION

DETERMINANTS

Question Bank

1. Find the values of x in which

$$\begin{vmatrix} 3 & x \\ x & 1 \end{vmatrix} = \begin{vmatrix} 3 & 2 \\ 4 & 1 \end{vmatrix}$$

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2. Evaluate $\begin{vmatrix} 2 & 4 \\ -5 & -1 \end{vmatrix}$

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3. Evaluate $\begin{vmatrix} \cos\theta & -\sin\theta \\ \sin\theta & \cos\theta \end{vmatrix}$

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4. Evaluate $\begin{vmatrix} x^2 - x + 1 & x - 1 \\ x + 1 & x + 1 \end{vmatrix}$

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5. If A = $\begin{bmatrix} 1 & 2 \\ 4 & 2 \end{bmatrix}$ then show that $|2A| = 4|A|$

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6. If A = $\begin{bmatrix} 1 & 0 & 1 \\ 0 & 1 & 2 \\ 0 & 0 & 4 \end{bmatrix}$, then show that $|3A| = 27|A|$

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7. Evaluate the following determinants

$$\begin{vmatrix} 3 & -1 & -2 \\ 0 & 0 & -1 \\ 3 & -5 & 0 \end{vmatrix}$$

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8. Evaluate the following determinants

$$\begin{vmatrix} 3 & -4 & 5 \\ 1 & 1 & -2 \\ 2 & 3 & 1 \end{vmatrix}$$

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9. Evaluate the following determinants

$$\begin{vmatrix} 0 & 1 & 2 \\ -1 & 0 & -3 \\ -2 & 3 & 0 \end{vmatrix}$$

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10. Evaluate the following determinants

$$\begin{vmatrix} 2 & -1 & -2 \\ 0 & 2 & -1 \\ 3 & -5 & 0 \end{vmatrix}$$

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11. If $A = \begin{bmatrix} 1 & 1 & -2 \\ 2 & 1 & -3 \\ 5 & 4 & -9 \end{bmatrix}$. Find |A|

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12. Find x if $\begin{vmatrix} 2 & 4 \\ 5 & 1 \end{vmatrix} = \begin{vmatrix} 2x & 4 \\ 6 & x \end{vmatrix}$

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13. If $\begin{vmatrix} x & 2 \\ 18 & x \end{vmatrix} = \begin{vmatrix} 6 & 2 \\ 18 & 6 \end{vmatrix}$, then x =

A. 6

B. ± 6

C. -6

D. 0

Answer: B

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14. Find the area of the triangle with vertices at

(1,0),(6,0),(4,3) using determinants.

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15. Find the area of the triangle with vertices at (2,7),(1,1),(10,8) using determinants.

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16. Find the area of the triangle with vertices at (-2,-3),(3,2),(-1,-8) using determinants.

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17. Using the property of determinants,show that the points $A(a, b+c), B(b, c+a), C(c, a+b)$

are collinear.

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18. Find the values of k if area of triangle is 4 sq. units and vertices are

(k,0),(4,0),(0,2)

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19. Find the values of k if area of triangle is 4 sq. units and vertices are

(-2,0),(0,4),(0,k)

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20. Find the equation of line joining (1,2) and (3,6) using determinants.

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21. Find the equation of line joining (3,1) and (9,3) using determinants.

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22. If area of triangle is 35 sq. units with vertices (2,-6), (5,4) and (k,4). Then k is____

A. 12

B. -2

C. $-12, \ -2$

D. $12, \ -2$

Answer: D

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23. Consider the determinant

$$\Delta = \begin{vmatrix} 0 & 2 & 6 \\ 1 & 5 & 0 \\ 3 & 7 & 1 \end{vmatrix}$$

Write the minors of the element in the first column ?

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24. Consider the determinant

$$\Delta = \begin{vmatrix} 0 & 2 & 6 \\ 1 & 5 & 0 \\ 3 & 7 & 1 \end{vmatrix}$$

Write the co-factors of the elements in the first column.

Hence, evaluate Δ

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25. Write minors and co-factors of the elements of following determinants:

$$\begin{vmatrix} 2 & -4 \\ 0 & 3 \end{vmatrix}$$

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26. Write minors and co-factors of the elements of following determinants:

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

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27. Write minors and co-factors of the elements of following determinants:

$$\begin{vmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{vmatrix}$$

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28. Write minors and co-factors of the elements of following determinants:

$$\begin{vmatrix} 1 & 0 & 4 \\ 3 & 5 & -1 \\ 0 & 1 & 2 \end{vmatrix}$$

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29. Using co-factors of elements of second row,

evaluate $\Delta = \begin{vmatrix} 5 & 3 & 8 \\ 2 & 0 & 1 \\ 1 & 2 & 3 \end{vmatrix}$

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30. Using co-factors of elements of third column,

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

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31. Is the matrix $\begin{bmatrix} 1 & 4 & 0 \\ -1 & 2 & 2 \\ 0 & 0 & 2 \end{bmatrix}$ singular ?

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32. For what value of x the matrix $A = \begin{bmatrix} 1 & -2 \\ x & 2 \end{bmatrix}$ is singular ?

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33. For what value of x the matrix $A = \begin{bmatrix} 1 & -2 \\ x & 2 \end{bmatrix}$ is singular ?

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34. If the matrix $A = \begin{bmatrix} 1 & 1 & 5 \\ a & 7 & 6 \\ 5 & 5 & 3 \end{bmatrix}$ is singular, find a ?

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35. Consider $A = \begin{bmatrix} 1 & 4 \\ -1 & 5 \end{bmatrix}$. Find A^{-1}

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36. Find the inverse of the following

$$A = \begin{bmatrix} 2 & 1 & 3 \\ 4 & -1 & 0 \\ -7 & 2 & 1 \end{bmatrix}$$

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37. Let A = $\begin{bmatrix} 1 & \sin\theta & 1 \\ -\sin\theta & 1 & \sin\theta \\ -1 & -\sin\theta & 1 \end{bmatrix}$, where $0 \leq \theta \leq 2\pi$

Then

A. Det (A) = 0

B. $Det(A)\varepsilon(2, \infty)$

C. $Det(A)\varepsilon(2, 4)$

D. $Det(A)\varepsilon[2, 4]$

Answer: D

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38. The sum of three numbers is 6. If we multiply third number by 3 and add second number to it, we get 11. By adding first and third numbers, we get double of the second number. Represent it algebraically and find the numbers using matrix method.

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39. If a,b,c are in A.P, find value of

$$\begin{vmatrix} 2y+4 & 5y+7 & 8y+a \\ 3y+5 & 6y+8 & 9y+b \\ 4y+6 & 7y+9 & 10y+c \end{vmatrix}$$

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40. 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 equations

x-y+2z=1

2y-3z=1

3x-2y+4z=2

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41. Using properties of determinants, prove that

$$\begin{vmatrix} 3a & -a+b & -a+c \\ -b+a & 3b & -b+c \\ -c+a & -c+b & 3c \end{vmatrix}$$ = 3(a+b+c)(ab+bc+ca)

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42. Using properties of determinants, prove that

$$\begin{vmatrix} 1 & 1+p & 1+p+q \\ 2 & 3+2p & 4+3p+2q \\ 3 & 6+3p & 10+6p+3q \end{vmatrix}$$ = 1

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43. Using properties of determinants, prove that

$$\begin{vmatrix} \sin\alpha & \cos\alpha & \cos(\alpha+\delta) \\ \sin\beta & \cos\beta & \cos(\beta+\delta) \\ \sin\gamma & \cos\gamma & \cos(\gamma+\delta) \end{vmatrix}$$ = 0

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Question Type

1. Evaluate

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

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2. Evaluate

$$\begin{vmatrix} 1 & 1 & 1 \\ a & b & c \\ b+c & c+a & a+b \end{vmatrix}$$

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3. prove that $\begin{vmatrix} a & b & c \\ a+2x & b+2y & c+2z \\ x & y & z \end{vmatrix} = 0$

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4. 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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5. Consider the determinant $\Delta = \begin{vmatrix} x & x^2 & 1+x^3 \\ y & y^2 & 1+y^3 \\ z & z^2 & 1+z^3 \end{vmatrix}$,

Where x,y,z are different.

Show that if $\Delta = 0$,then$1 + xyz = 0$

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6. Using properties, prove that

$\begin{vmatrix} 1 & \omega & \omega^2 \\ \omega & \omega^2 & 1 \\ \omega^2 & 1 & \omega \end{vmatrix} = 0$where $\omega$is a complex cube root of unity.

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7. Without expanding the determinant prove the following.

$$\begin{vmatrix} a-b & b-c & c-a \\ b-c & c-a & a-b \\ c-a & a-b & b-c \end{vmatrix} = 0$$

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8. Using properties of determinants show that

$$\begin{vmatrix} 1+a & 1 & 1 \\ 1 & 1+b & 1 \\ 1 & 1 & 1+c \end{vmatrix} = abc\left(1+\frac{1}{a}+\frac{1}{b}+\frac{1}{c}\right)$$

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9. Consider the determinant

$$D = \begin{vmatrix} 1 & 3 & 5 \\ 2 & 6 & 10 \\ 31 & 11 & 38 \end{vmatrix}$$

On taking 2 outside the determinant from the second row, show that $\Delta = 0$

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10. Consider the determinant

$$D = \begin{vmatrix} 1 & 3 & 5 \\ 2 & 6 & 10 \\ 31 & 11 & 38 \end{vmatrix}$$

Evaluate Δdirectly by expanding along 2^{nd}row and see that the answer is the same .

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11. Consider the determinant

$$\Delta = \begin{vmatrix} 1 & a & a^2 - bc \\ 1 & b & b^2 - ca \\ 1 & c & c^2 - ba \end{vmatrix}$$ Without expanding, prove that

$\Delta = 0$

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12. Consider the determinant

$$\Delta = \begin{vmatrix} 1 & a & a^2 - bc \\ 1 & b & b^2 - ca \\ 1 & c & c^2 - ba \end{vmatrix}$$ Without expanding, prove that

$\Delta = 0$

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13. Consider the equation

$$\begin{vmatrix} 3x-8 & 3 & 3 \\ 3 & 3x-8 & 3 \\ 3 & 3 & 3x-8 \end{vmatrix} = 0$$

Operating $C_1 \to C_1 + C_2 + C_3$ Prove that

$$(3x-2)\begin{vmatrix} 1 & 3 & 3 \\ 1 & 3x-8 & 3 \\ 1 & 3 & 3x-8 \end{vmatrix} = 0$$

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14. Consider the equation

$$\begin{vmatrix} 3x-8 & 3 & 3 \\ 3 & 3x-8 & 3 \\ 3 & 3 & 3x-8 \end{vmatrix} = 0$$

Solve the given equation.

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15. Without expanding the determinant prove the following.

$$\begin{vmatrix} x & a & x+a \\ y & b & y+b \\ z & c & z+c \end{vmatrix} = 0$$

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16. Without expanding the determinant prove the following.

$$\begin{vmatrix} 2 & 7 & 65 \\ 3 & 8 & 75 \\ 5 & 9 & 86 \end{vmatrix} = 0$$

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17. Without expanding the determinant prove the following.

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

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18. Without expanding the determinant prove the following.

$$\begin{vmatrix} 1 & bc & a(b+c) \\ 1 & ca & b(c+a) \\ 1 & ab & c(a+b) \end{vmatrix} = 0$$

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19. Without expanding the determinant prove the following.

$$\begin{vmatrix} a-b & b-c & c-a \\ b-c & c-a & a-b \\ c-a & a-b & b-c \end{vmatrix} = 0$$

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20. By using properties of determinants, prove that

$$\begin{vmatrix} 0 & a & -b \\ -a & 0 & -c \\ b & c & 0 \end{vmatrix} = 0$$

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21. By using properties of determinants, prove that

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

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22. using properties of determinants, prove that

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

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23. Using properties of determinants prove the following.

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

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24. By using properties of determinants, prove that

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

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25. By using properties of determinants, prove that

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

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26. By using properties of determinants, prove that

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

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27. Prove that

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

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28. By using properties of determinants, prove that

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

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29. Using properties of determinants prove the following.

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

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30. By using the properties of determinants,prove that

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

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31. By using the properties of determinants,prove that

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

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32. Let A be a square matrix of order 2x2

then $|KA|$ is equal to

A. k|A|

B. $k^2|A|$

C. $k^3|A|$

D. 3K|A|

Answer: C

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33. Which of the following is correct?

A. Determinant is a square matrix

B. Determinant is a number associated to a matrix

C. Determinant is a number associated to a square matrix

D. none of these

Answer: C

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34. Consider a triangle whose vertices are (3,8),(-4,2) and (5,1) Find area of triangle using determinant

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35. Find the equation of the line joining A(1,3) and B(0,0) using determinants and k is D (k,0)is a points such that area of triangle ABD is 3 sq.unit.

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36. Find the adjoint of A= $\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$

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37. Find the adjoint of B= $\begin{bmatrix} 1 & -1 & 2 \\ 2 & 3 & 5 \\ -2 & 0 & 1 \end{bmatrix}$

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38. Verify A (adj A)=(adj A)A=|A|I in the following matrices.

$$\begin{bmatrix} 2 & 3 \\ -4 & -6 \end{bmatrix}$$

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39. Verify A (adj A)=(adj A)A=|A|I in the following matrices.

$$\begin{bmatrix} 2 & 3 \\ -4 & -6 \end{bmatrix}$$

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40. Find the inverse of the following matrics.

$$\begin{bmatrix} 2 & -2 \\ 4 & 3 \end{bmatrix}$$

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41. Find the inverse of the following matrics.

$$\begin{bmatrix} -1 & 5 \\ -3 & 2 \end{bmatrix}$$

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42. Find the inverse of the following

$$A = \begin{bmatrix} 1 & 2 & 3 \\ 0 & 2 & 4 \\ 0 & 0 & 5 \end{bmatrix}$$

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43. Find the inverse of the following

$$A = \begin{bmatrix} 1 & 0 & 0 \\ 3 & 3 & 0 \\ 5 & 2 & -1 \end{bmatrix}$$

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44. Find the inverse of the following

$$A = \begin{bmatrix} 2 & 1 & 3 \\ 4 & -1 & 0 \\ -7 & 2 & 1 \end{bmatrix}$$

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45. Find the inverse of the following

$$A = \begin{bmatrix} 1 & -1 & 2 \\ 0 & 2 & -3 \\ 3 & -2 & 4 \end{bmatrix}$$

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46. Let A $= \begin{bmatrix} 3 & 7 \\ 2 & 5 \end{bmatrix}$ and B$= \begin{bmatrix} 6 & 8 \\ 7 & 9 \end{bmatrix}$ Verify that $(AB)^{-1} = B^{-1}A^{-1}$

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47. If A $= \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$,show that $A^2 - 5A + 7I = 0$ Hence, find A^{-1}

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48. For the matrix A=$\begin{bmatrix} 3 & 2 \\ 1 & 1 \end{bmatrix}$,find the numbers a and b such that $A^2 + aA + bI = 0$

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49. For the matrix A=$\begin{bmatrix} 1 & 1 & 1 \\ 1 & 2 & -3 \\ 2 & -1 & 3 \end{bmatrix}$ show that $A^3 - 6A^2 + 5A + 11I = 0$. Hence, find A^{-1}

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50. Let A be a non-singular square matrix of order 3×3 .Then |adj A| is ...

A. |A|

B. $|A|^2$

C. $|A|^3$

D. 3 |A|

Answer: B

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51. If A is an invertible matrix of order 2, then det(A^{-1})=

A. det (A)

B. 1/det(A)

C. 1

D. 0

Answer: B

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52. Examine the consistency of the following system of equation

$x+2y=12$

$2x+3y=3$

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53. Examine the consistency of the following system of equation

$2x-y=5$

$x+y=4$

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54. Examine the consistency of the following system of equation

$x+3y=5$

$2x+6y=8$

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55. Examine the consistency of the following system of equation

x+y+z=1

2x +3y+2z =2

ax +ay +2az =4

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56. Test the consistency

$3x - y - 2z = 2, 2y - z = -1, 3x - 5y = 3$

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57. Examine the consistency of the following system of equation

$5x-y+4z=5$

$2x+3y+5z=2$

$5x-2y+6z=-1$`

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58. Solve the following system of linear equations using matrix method.

$5x+2y=4$

$7x+3y=5$

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59. Solve the following system of linear equations using matrix method.

$2x-y=-2$

$3x+4y=3$

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60. Solve the following system of linear equations using matrix method.

$4x-3y=3$

$3x-5y=7$

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61. Solve the following system of linear

Equations,using matrix method,

$5x + 2y = 3,3x + 2y = 5$

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62. Solve the following system of linear equations using

matrix method.

2x+y+z=-1

x-2y -z=3/2

3y-5z=9

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63. Let $A = \begin{bmatrix} 1 & -1 & 1 \\ 2 & 1 & -3 \\ 1 & 1 & 1 \end{bmatrix}$

Using A^-1 solve the system of

equations

$x - y + z = 4$

$2x + y - 3z = 0$

$x + y + z = 2$

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64. Solve the following system of linear equations using

matrix method.

2x+3y+3z=5

x-2y +z=-4

3x-y-2z=3

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65. Solve the following system of linear equations using matrix method.

x-y+2z=7

3x+4y-5z=5

2x-y+3z =12

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66. If A=$\begin{bmatrix} 2 & -3 & 5 \\ 3 & 2 & -4 \\ 1 & 1 & -2 \end{bmatrix}$ find A^{-1}Using A^{-1}solve the system of equations:2x-3y+5z=11

3x+2y-4z=-5

x+y-2z=-3

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67. The cost of 4 kg onion, 3 kg wheat and 2 kg rice is Rs.60.The cost of 2 kg onion,4 kg wheat and 6 kg rice is Rs. 90. The cost of 6 kg onion,2 kg wheat and 3 kg rice is Rs.70. Find the cost of each item per kg by matrix method.

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68. Prove that $\begin{vmatrix} x & \sin\theta & \cos\theta \\ -\sin\theta & -x & 1 \\ \cos\theta & 1 & x \end{vmatrix}$ is independent of θ

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69. Without expanding the determinant,

Prove that $\begin{vmatrix} a & a^2 & bc \\ b & b^2 & ca \\ c & c^2 & ab \end{vmatrix} = \begin{vmatrix} 1 & a^2 & a^3 \\ 1 & b^2 & b^3 \\ 1 & c^2 & c^3 \end{vmatrix}$

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70. Evaluate $\begin{vmatrix} \cos\alpha\cos\beta & \cos\alpha\sin\beta & -\sin\alpha \\ -\sin\beta & \cos\beta & 0 \\ \sin\alpha\cos\beta & \sin\alpha\sin\beta & \cos\alpha \end{vmatrix}$

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71. If a,b,c are real numbers and $\begin{vmatrix} b+c & c+a & a+b \\ c+a & a+b & b+c \\ a+b & b+c & c+a \end{vmatrix} = 0$,show that a=b=c

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72. Solve the equation $\begin{vmatrix} x+a & x & x \\ x & x+a & x \\ x & x & x+a \end{vmatrix} = 0, a \neq 0$

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73. Prove that $\begin{vmatrix} a^2 & bc & ac+c^2 \\ a^2+ab & b^2 & ac \\ ab & b^2+bc & c^2 \end{vmatrix} = 4a^2b^2c^2$

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74. If $A^{-1} = \begin{bmatrix} 3 & -1 & 1 \\ -15 & 6 & -5 \\ 5 & -2 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 2 & -2 \\ -1 & 3 & 0 \\ 0 & -2 & 1 \end{bmatrix}$ find $(AB)^{-1}$

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75. Let $A = \begin{bmatrix} 1 & -2 & 1 \\ -2 & 3 & 1 \\ 1 & 1 & 5 \end{bmatrix}$ verify that $\left(A^{-1}\right)^{-1} = A$

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76. Let $A = \begin{bmatrix} 1 & -2 & 1 \\ -2 & 3 & 1 \\ 1 & 1 & 5 \end{bmatrix}$ verify that $\left(A^{-1}\right)^{-1} = A$

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77. Using properties of determinants prove

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

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78. evaluate $\begin{vmatrix} 1 & x & y \\ 1 & x+y & y \\ 1 & x & x+y \end{vmatrix}$

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79. Using properties of determinants, prove that

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

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

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81. Consider a system of linear equations which is given below,

$$\frac{2}{x}+\frac{3}{y}+\frac{10}{z}=4,\frac{4}{x}-\frac{6}{y}+\frac{5}{z}=1,$$
$$\frac{6}{x}+\frac{9}{y}-\frac{20}{z}=2.$$

Express the above equation in the matrix form $AX=B$.

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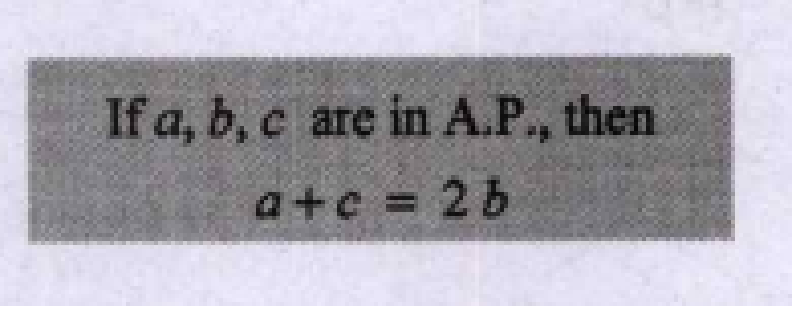
82. If a,b,c are in A.P., then the determinant

$$\begin{vmatrix} x+2 & x+3 & x+2a \\ x+3 & x+4 & x+2b \\ x+4 & x+5 & x+2c \end{vmatrix}$$ is



A. 0

B. 1

C. x

D. 2x

Answer: A

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83. If x,y,z are non-zero real numbers, then the inverse of

$$A = \begin{bmatrix} x & 0 & 0 \\ 0 & y & 0 \\ 0 & 0 & z \end{bmatrix}$$ is

If all the elements in a row (or columns) of a determinant are zero, then the value of the determinant is zero

A. $\begin{bmatrix} x^{-1} & 0 & 0 \\ 0 & y^{-1} & 0 \\ 0 & 0 & z^{-1} \end{bmatrix}$

B. $(xyz)\begin{bmatrix} x^{-1} & 0 & 0 \\ 0 & y^{-1} & 0 \\ 0 & 0 & z^{-1} \end{bmatrix}$

C. $\frac{1}{xyz}\begin{bmatrix} x & 0 & 0 \\ 0 & y & 0 \\ 0 & 0 & z \end{bmatrix}$

D. $\frac{1}{xyz}\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

Answer: A

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