

A1 Determinants

Lesson Plan 1

This set of Mathematics Multiple Choice Questions & Answers (MCQs) focuses on "Determinants – Minors and Cofactors".

1. Which of the following is the formula for cofactor of an element a_{ij} ?

a) $A_{ij} = (1)^{i+j} M_{ij}$

b) $A_{ij} = (-2)^{i+j} M_{ij}$

c) $A_{ij} = (-1)^{i+j} M_{ij}$

d) $A_{ij} = (-1)^{i-j} M_{ij}$

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2. What is the minor of the element 5 in the determinant $\Delta = \begin{vmatrix} 1 & 5 & 4 \\ 2 & 3 & 6 \\ 7 & 9 & 4 \end{vmatrix}$?

a) -34

b) 34

c) -17

d) 21

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3. Find the minor and cofactor respectively for the element 3 in the determinant $\Delta = \begin{vmatrix} 1 & 5 \\ 3 & 6 \end{vmatrix}$.

a) $M_{21} = -5, A_{21} = -5$

b) $M_{21} = 5, A_{21} = -5$

c) $M_{21} = -5, A_{21} = 5$

d) $M_{21} = 5, A_{21} = 5$

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4. Find the minor of the element 1 in the determinant $\Delta = \begin{vmatrix} 1 & 5 \\ 3 & 8 \end{vmatrix}$.

- a) 5
- b) 1
- c) 8
- d) 3

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5. Find the cofactor of element -3 in the determinant $\Delta = \begin{vmatrix} 1 & 4 & 4 \\ -3 & 5 & 9 \\ 2 & 1 & 2 \end{vmatrix}$.

- a) -4
- b) 4
- c) -5
- d) -3

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6. If $\Delta = \begin{vmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{vmatrix}$, then the determinant in terms of cofactors A_{ij} can be expressed as

$$a_{11} A_{11} + a_{21} A_{21} + a_{31} A_{31}.$$

- a) True
- b) False

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7. Find the minor of the element 2 in the determinant $\Delta = \begin{vmatrix} 1 & 9 \\ 2 & 3 \end{vmatrix}$?

- a) 3
- b) 9
- c) 1
- d) 2

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8. For which of the elements in the determinant $\Delta = \begin{vmatrix} 1 & 8 & -6 \\ 2 & -3 & 4 \\ -7 & 9 & 5 \end{vmatrix}$ the cofactor is -37.

- a) 4
- b) 1
- c) -6
- d) -3

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9. For which of the following elements in the determinant $\Delta = \begin{vmatrix} 2 & 8 \\ 4 & 7 \end{vmatrix}$, the minor of the element is 2?

- a) 2
- b) 7
- c) 4
- d) 8

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10. For which of the following element in the determinant $\Delta = \begin{vmatrix} 5 & -5 & 8 \\ 6 & 2 & -1 \\ 5 & -6 & 8 \end{vmatrix}$, the minor and the cofactor both are zero.

- a) -5
- b) 2
- c) -6
- d) 8

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