

Q5.—Q6.—Q7.

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50. $|A^{-1}| \neq |A|^{-1}$, where A is non-singular matrix.

Sol. False

We know that $|A^{-1}| = |A|^{-1}$, where A is a non-singular matrix.

51. If A and B are matrices of order 3 and $|A| = 5$, $|B| = 3$, then $|3AB| = 27 \times 5 \times 3 = 405$.

Sol. True.

We know that, $|AB| = |A| \cdot |B|$ and $|kA| = k^n|A|$, where k is scalar and n is order of matrix A

$$\therefore |3AB| = 3^3|AB| = 27|A| \cdot |B| = 27 \times 5 \times 3 = 405$$

52. If the value of a third order determinant is 12, then the value of the determinant formed by replacing each element by its co-factor will be 144.

Sol. True

Let A is the determinant.

Given $|A| = 12$

Also, we know that, if A is a square matrix of order n , then $|\text{adj } A| = |A|^{n-1}$.

$$\text{For } n = 3, |\text{adj } A| = |A|^{3-1} = |A|^2 = (12)^2 = 144$$