Latex Assignment19

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Ex 12.4.1

Evaluate the determinants in 1 to 2:

1. $\begin{pmatrix} 2 & 4 \\ -5 & -1 \end{pmatrix}$
2. (i) $\begin{pmatrix} \cos\theta & -\sin\theta \\ \sin\theta & \cos\theta \end{pmatrix}$

   (ii) $\begin{pmatrix} x^2 - x + 1 & x - 1 \\ x + 1 & x + 1 \end{pmatrix}$
3. If $A = \begin{pmatrix} 1 & 2 \\ 4 & 2 \end{pmatrix}$, then show that $|2A| = |4A|$.
4. If $A = \begin{pmatrix} 1 & 0 & 1 \\ 0 & 1 & 2 \\ 0 & 0 & 4 \end{pmatrix}$, then show that $|3A| = |27A|$.
5. Evaluate the determinants:

   (i) $\begin{pmatrix} 3 & -1 & -2 \\ 0 & 0 & 1 \\ 3 & -5 & 0 \end{pmatrix}$

   (ii) $\begin{pmatrix} 3 & -4 & 5 \\ 1 & 1 & -2 \\ 2 & 3 & 1 \end{pmatrix}$

   (iii) $\begin{pmatrix} 0 & 1 & 2 \\ -1 & 0 & -3 \\ -2 & 3 & 0 \end{pmatrix}$

   (iv) $\begin{pmatrix} 2 & -1 & -2 \\ 0 & 2 & -1 \\ 3 & -5 & 0 \end{pmatrix}$

6. If $A = \begin{pmatrix} 1 & 1 & -2 \\ 2 & 1 & -3 \\ 5 & 4 & -9 \end{pmatrix}$, find A.

7. Find values of x, if:

   (i) $\begin{pmatrix} 2 & 4 \\ 5 & 1 \end{pmatrix} = \begin{pmatrix} 2x & 4 \\ 6 & x \end{pmatrix}$

   (ii) $\begin{pmatrix} 2 & 3 \\ 4 & 5 \end{pmatrix} = \begin{pmatrix} x & 3 \\ 2x & 5 \end{pmatrix}$

8. If $\begin{pmatrix} x & 2 \\ 18 & x \end{pmatrix} = \begin{pmatrix} 6 & 2 \\ 18 & 6 \end{pmatrix}$, then x is equal to:

   (a) 6

   (b) ± 6

   (c) -6

   (d) 0