Assignment WW-Determinant

1. (1 point) Find the determinant of the matrix

$$A = \begin{bmatrix} -9 & 2 \\ 2 & -2 \end{bmatrix}.$$

$\det(A) =$ _____.

Correct Answers:

- 14

2. (1 point)

Find the determinant of the matrix

$$M = \begin{bmatrix} -5 & 8 & 4 \\ 0 & -3 & 7 \\ 0 & 0 & 4 \end{bmatrix}.$$

$\det(M) =$ _____.

Correct Answers:

- -5*-3*4

3. (1 point) Given the matrix

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

find its determinant.

The determinant is _____.

Correct Answers:

- 58

4. (1 point)

Suppose that a 4×4 matrix A with rows $\vec{v}_1$, $\vec{v}_2$, $\vec{v}_3$, and $\vec{v}_4$ has determinant $\det A = 5$. Find the following determinants:

$$\det \begin{bmatrix} \vec{v}_1 \\ \vec{v}_2 \\ \vec{v}_3 \\ 7\vec{v}_4 \end{bmatrix} = \_\_\_,$$

$$\det \begin{bmatrix} \vec{v}_4 \\ \vec{v}_3 \\ \vec{v}_2 \\ \vec{v}_1 \end{bmatrix} = \_\_\_,$$

$$\det \begin{bmatrix} \vec{v}_1 \\ \vec{v}_2 \\ \vec{v}_3 + 3\vec{v}_4 \\ \vec{v}_4 \end{bmatrix} = \_\_\_.$$

Correct Answers:

- 35
- 5
- 5

5. (1 point)

If A and B are 4×4 matrices, $\det(A) = -5$, $\det(B) = -2$, then

$\det(AB) =$ _____,
$\det(2A) =$ _____,
$\det(A^T) =$ _____,
$\det(B^{-1}) =$ _____,
$\det(B^4) =$ _____.

Correct Answers:

- 10
- -80
- -5
- -0.5
- 16

6. (1 point)

Find k such that the following matrix M is singular.

$$M = \begin{bmatrix} -1 & 1 & 2 \\ -2 & 5 & 2 \\ 6+k & -8 & -8 \end{bmatrix}$$

$k =$ _____

Correct Answers:

- -1