23. The matrix $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ is a

(1) scalar matrix.
(2) matrix that is not square.
(3) unit matrix.
(4) null matrix.

24. The product $[U][A]$ of the unit matrix $[U]$ and the matrix $[A]$ is

(1) the unit matrix $[U]$.
(2) the matrix $[A]$.
(3) the inverse matrix $[A]^{-1}$.
(4) the adjoint matrix $[A_{ij}]^T$.

25. The product $[0][U]$ of the null matrix $[0]$ and the unit matrix $[U]$ is

(1) the unit matrix $[U]$.
(2) a scalar matrix.
(3) the null matrix $[0]$.
(4) a diagonal matrix.

26. A scalar matrix $[K]$ is obtained when a scalar k multiplies a

(1) null matrix.
(2) unit matrix.
(3) matrix that is not square.
(4) square matrix.

27. A matrix $[A]$ multiplied by a scalar matrix $[K]$ is simply multiplied by

(1) zero.
(2) one.
(3) the scalar factor k.
(4) the scalar factor k^2.

28. What is the adjoint of the matrix $[A] = \begin{bmatrix} 3 & 2 \\ 1 & 6 \end{bmatrix}$?

(1) $\begin{bmatrix} 6 & -1 \\ -2 & 3 \end{bmatrix}$ (2) $\begin{bmatrix} 3 & 2 \\ 1 & 6 \end{bmatrix}$ (3) $\begin{bmatrix} 6 & -2 \\ -1 & 3 \end{bmatrix}$ (4) $\begin{bmatrix} -1 & 3 \\ 6 & -2 \end{bmatrix}$

29. The inverse $[A]^{-1}$ of a matrix $[A]$ is the adjoint of $[A]$ divided by

(1) the transpose of $[A]$.
(2) the unit matrix.
(3) $[A]$.
(4) the determinant $|A|$ of $[A]$.

30. What is the inverse $[A]^{-1}$ of the matrix $[A]$ in Question 28?

(1) $\frac{1}{18}\begin{bmatrix} 6 & -2 \\ -1 & 3 \end{bmatrix}$ (3) $\frac{1}{16}\begin{bmatrix} 6 & -1 \\ -2 & 3 \end{bmatrix}$

(2) $\frac{1}{16}\begin{bmatrix} 6 & -2 \\ -1 & 3 \end{bmatrix}$ (4) $\frac{1}{16}\begin{bmatrix} 3 & 2 \\ 1 & 6 \end{bmatrix}$