1. Given \( [A] = \begin{bmatrix} 6 & 2 & 3 & 9 \\ 0 & 1 & 2 & 3 \\ 0 & 0 & 4 & 5 \\ 0 & 0 & 0 & 6 \end{bmatrix} \) then \([A]\) is a _____________ matrix.

(A) diagonal
(B) identity
(C) lower triangular
(D) upper triangular

2. A square matrix \([A]\) is lower triangular if
   
   (A) \( a_{ij} = 0, j > i \)
   
   (B) \( a_{ij} = 0, i > j \)
   
   (C) \( a_{ij} \neq 0, i > j \)
   
   (D) \( a_{ij} \neq 0, j > i \)

3. Given
   \[
   [A] = \begin{bmatrix} 12.3 & -12.3 & 20.3 \\ 11.3 & -10.3 & -11.3 \\ 10.3 & -11.3 & -12.3 \end{bmatrix}, \quad [B] = \begin{bmatrix} 2 & 4 \\ -5 & 6 \\ 11 & -20 \end{bmatrix}
   \]
   then if
   \[
   [C] = [A] [B], \quad c_{31} = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   \]

(A) -58.2
(B) -37.6
(C) 219.4
(D) 259.4
4. The following system of equations has ____________ solution(s).
   \[ \begin{align*}
   x + y &= 2 \\
   6x + 6y &= 12
   \end{align*} \]
   (A) infinite
   (B) no
   (C) two
   (D) unique

5. Consider there are only two computer companies in a country. The companies are named Dude and Imac. Each year, company Dude keeps \( \frac{1}{5} \)th of its customers, while the rest switch to Imac. Each year, Imac keeps \( \frac{1}{3} \)rd of its customers, while the rest switch to Dude. If in 2003, Dude had \( \frac{1}{6} \)th of the market and Imac had \( \frac{5}{6} \)th of the market, what will be share of Dude computers when the market becomes stable?
   (A) \( \frac{37}{90} \)
   (B) \( \frac{5}{11} \)
   (C) \( \frac{6}{11} \)
   (D) \( \frac{53}{90} \)

6. Three kids - Jim, Corey and David receive an inheritance of $2,253,453. The money is put in three trusts but is not divided equally to begin with. Corey's trust is three times that of David's because Corey made an A in Dr. Kaw’s class. Each trust is put in an interest generating investment. The three trusts of Jim, Corey and David pays an interest of 6%, 8%, 11%, respectively. The total interest of all the three trusts combined at the end of the first year is $190,740.57. The equations to find the trust money of Jim \( J \), Corey \( C \) and David \( D \) in a matrix form is
   (A) \[
   \begin{bmatrix}
   1 & 1 & 1 \\
   0 & 3 & -1 \\
   0.06 & 0.08 & 0.11
   \end{bmatrix}
   \begin{bmatrix}
   J \\
   C \\
   D
   \end{bmatrix}
   =
   \begin{bmatrix}
   2,253,453 \\
   0 \\
   190,740.57
   \end{bmatrix}
   \]
   (B) \[
   \begin{bmatrix}
   1 & 1 & 1 \\
   0 & 1 & -3 \\
   0.06 & 0.08 & 0.11
   \end{bmatrix}
   \begin{bmatrix}
   J \\
   C \\
   D
   \end{bmatrix}
   =
   \begin{bmatrix}
   2,253,453 \\
   0 \\
   190,740.57
   \end{bmatrix}
   \]
   (C) \[
   \begin{bmatrix}
   1 & 1 & 1 \\
   0 & 1 & -3 \\
   6 & 8 & 11
   \end{bmatrix}
   \begin{bmatrix}
   J \\
   C \\
   D
   \end{bmatrix}
   =
   \begin{bmatrix}
   2,253,453 \\
   0 \\
   190,740.57
   \end{bmatrix}
   \]
   (D) \[
   \begin{bmatrix}
   1 & 1 & 1 \\
   0 & 3 & -1 \\
   6 & 8 & 11
   \end{bmatrix}
   \begin{bmatrix}
   J \\
   C \\
   D
   \end{bmatrix}
   =
   \begin{bmatrix}
   2,253,453 \\
   0 \\
   19,074,057
   \end{bmatrix}
   \]