3. Construct $a_{2\times 2}$ matrix where

(i) $a_{ij} = \dfrac{(i-2j)^2}{2}$

(ii) $a_{ij} = |-2i + 3j|$

39. If $A = \begin{bmatrix} 1 & 5 \\ 7 & 12 \end{bmatrix}$ and $B = \begin{bmatrix} 9 & 1 \\ 7 & 8 \end{bmatrix}$, find a matrix C such that $3A + 5B + 2C$ is a null matrix.

56. If $A = \frac{1}{\pi}\begin{bmatrix} \sin^{-1}(x\pi) & \tan^{-1}\left(\frac{x}{\pi}\right) \\ \sin^{-1}\left(\frac{x}{\pi}\right) & \cot^{-1}(\pi x) \end{bmatrix}$, $B = \frac{1}{\pi}\begin{bmatrix} -\cos^{-1}(x\pi) & \tan^{-1}\left(\frac{x}{\pi}\right) \\ \sin^{-1}\left(\frac{x}{\pi}\right) & -\tan^{-1}(\pi x) \end{bmatrix}$, then

$A - B$ is equal to

(A) I (B) O (C) 2I (D) $\frac{1}{2}$I

54. Total number of possible matrices of order 3×3 with each entry 2 or 0 is

(A) 9 (B) 27 (C) 81 (D) 512

55. If $\begin{bmatrix} 2x+y & 4x \\ 5x-7 & 4x \end{bmatrix} = \begin{bmatrix} 7 & 7y-13 \\ y & x+6 \end{bmatrix}$, then the value of $x + y$ is

(A) $x = 3, y = 1$ (B) $x = 2, y = 3$

(C) $x = 2, y = 4$ (D) $x = 3, y = 3$

50. Find x, y, z if $A = \begin{bmatrix} 0 & 2y & z \\ x & y & -z \\ x & -y & z \end{bmatrix}$ satisfies $A' = A^{-1}$.