# Task 5 – Pseudocode

Question: Write the pseudocode corresponding to functions for addition, subtraction and multiplication of two matrices, and then compute A=B\*C –2\*(B+C), where B and C are two quadratic matrices of order n. What is the run-time?  

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| --- |
| ADDITION\_MATRICES (matrix1, matrix2)  FOR I <- 0 to length[matrix1]  FOR J <- 0 to length[matrix1]  SUM[i][j] <- matrix1[i][j] + matrix2[i][j]  RETURN SUM |

O(N^2)

|  |
| --- |
| MULTIPLICATION\_NR (matrix1, NUM)  FOR I <- 0 to length[matrix1]  FOR J <- 0 to length[matrix1]  FOR K <- 0 to length[matrix1]                          SUM[i][j] = matrix1[i][k] \* matrix2[k][j]  RETURN SUM |

O(N^3)

|  |
| --- |
| MULTIPLICATION\_MATRICES (matrix1, matrix2)  FOR I <- 0 to length[matrix1]  FOR J <- 0 to length[matrix1]  FOR K <- 0 to length[matrix1]                          SUM[i][j] = matrix1[i][k] \* matrix2[k][j]  RETURN SUM |

O(N^3)

|  |
| --- |
| COMPUTE\_MATRICES (b, c)  R1 <- MULTIPLICATION\_MATRCIES (b, c) O (N^3)  R2 <- ADDITION\_MATRICES (b, c) O (N^2)  R3 <- MULTIPLICATION\_NR (R2, 2) O (N^2)  SUM <- R1 - R3 O (1)  PRINT SUM O (1) |