COMP2521 Data Structures & Algorithms Final Exam

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[Q1] [Q2] **[Q3]** [Q4] [Q5] [Q6] [Q7] [Q8]

Question 3 (4 marks)

Consider the following function to multiply two N x N matrices:

```
void multiply(int a[N][N], int b[N][N], int c[N][N])
{
    int i, j, k;
    for (i = 0; i < N; i++) {
        for (j = 0; j < N; j++) {
            c[i][j] = 0;
        }
    }
    for (i = 0 i < N; i++) {
        for (j = 0; j < N; j++) {
            for (k = 0; k < N; k++) {
                c[i][j] += a[i][k] * b[k][j];
            }
        }
    }
}
```

a. How many multiplications are performed if `N == 3`?

b. How many multiplications are performed if `N == 20`?

c. What is the algorithmic complexity of this function? (relative to `N`)

Instructions:

- Type your answer to this question into the file called `q3.txt`
- Submit via: **`give cs2521 exam_q3 q3.txt`**
  or via: Webcms3 > exams > Final Exam > Submit Q3 > Make Submission

End of Question