Question 1

What is the sum of diagonal elements of the matrix $\begin{pmatrix} 1 & -1 \\ -1 & -1 \end{pmatrix}^{10}$?

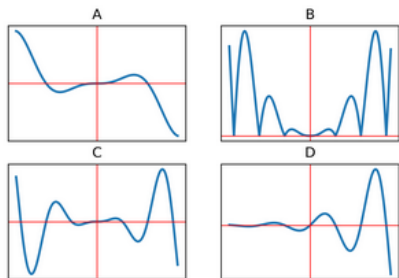○ 0

○ 32

○ 64

○ 128

↺ Reset Answer

Question 2

The plot of $y=x^2\sin(2x)$ is

○ A

○ B

○ C

○ D

○ None of the Above

↺ Reset Answer

Question 3

Consider the system of equations

$$x + 3y - z = 4$$
$$4x - y + 2z = 8$$
$$2x - 7y + 4z = 0$$

○ The above system of equations has no solution

○ The above system of equations has unique solution

○ The above system of equations has infinitely many solutions

○ None of the above

↺ Reset Answer

Question 4

One of the two coins A and B is randomly chosen with equal likelihood. A is unbiased, but B yields heads with probability 3/4. The outcome of this overall experiment is X = 0, if the chosen coin yields heads and X = 1, otherwise. What is the variance of X?

○ 15/64

○ 24/64

○ 3/4

○ None of the above

↺ Reset Answer

Question 5

If the letters of the word *RAMESH* be arranged at random, what is the probability that there are exactly 3 letters between *A* and *E* ?

○ 1/60

○ 2/15

○ 1/2

○ None of the above

↺ Reset Answer

Matrix multiplication

Given two square matrices A and B of size N, write a simple code to perform matrix multiplication C=AB.

You will read the input and write the output from/to standard IO (console). Sample template code to read and write from I/O is provided for C, C++, Java. Choose one of the languages comfortable to you.

Input format:

You should read A and B matrices from the standard console input in the format explained below:

The first row of your input has the value of N, which gives the size of A and B. The following first N rows are rows of A matrix, with each row having N integers separated by a space. There is a trailing space at the end of a line. Similarly, elements of B are mentioned in subsequent N rows.

Output format:

You should output the C matrix to the standard console output. You will print N rows of numbers, each having N numbers separated by a space.

Sample input 1	Copy	Sample output 1	Copy

```
4
1 1 1 1
2 2 2 2
3 3 3 3
4 4 4 4
1 1 1 1
2 2 2 2
3 3 3 3
4 4 4 4
```

```
10 10 10 10
20 20 20 20
30 30 30 30
40 40 40 40
```

Explanation

In the example, both A and B matrices are of size N=4. Standard matrix multiplication has been performed, and the elements are stored in C. The C matrix is printed to standard I/O.

Note: Your code must be able to print the sample output from the provided sample input. However, your code is run against multiple hidden test cases. Therefore, your code must pass these hidden test cases to solve the problem statement.

Time Limit: 5.0 sec(s) for each input file
Memory Limit: 256 MB
Source Limit: 1024 KB
Marking Scheme: Score is assigned if any testcase passes
Allowed Languages: C, C++, Java 8