

# STRASSEN'S MATRIX MULTIPLICATION

## **CODE:**

```
#include<iostream>
using namespace std;
int main() {
    int z[2][2];
    int i, j;
    int m1, m2, m3, m4 , m5, m6, m7;
    int x[2][2] = {
        {1, 3},
        {5, 7}
    };
    int y[2][2] = {
        {8, 4},
        {6, 2}
    };
    cout<<"The first matrix is: ";
    for(i = 0; i < 2; i++) {
        cout<<endl;
        for(j = 0; j < 2; j++)
            cout<<x[i][j]<<" ";
    }
    cout<<"\nThe second matrix is: ";
    for(i = 0; i < 2; i++){
        cout<<endl;
        for(j = 0; j < 2; j++)
            cout<<y[i][j]<<" ";
    }

    m1 = (x[0][0] + x[1][1]) * (y[0][0] + y[1][1]);
    m2 = (x[1][0] + x[1][1]) * y[0][0];
    m3 = x[0][0] * (y[0][1] - y[1][1]);
    m4 = x[1][1] * (y[1][0] - y[0][0]);
    m5 = (x[0][0] + x[0][1]) * y[1][1];
```

```

m6 = (x[1][0] - x[0][0]) * (y[0][0]+y[0][1]);
m7 = (x[0][1] - x[1][1]) * (y[1][0]+y[1][1]);

```

```

z[0][0] = m1 + m4- m5 + m7;
z[0][1] = m3 + m5;
z[1][0] = m2 + m4;
z[1][1] = m1 - m2 + m3 + m6;

```

```

cout<<"\nProduct formed using Strassen's algorithm: ";
for(i = 0; i < 2 ; i++) {
    cout<<endl;
    for(j = 0; j < 2; j++)
        cout<<z[i][j]<<" ";
}
return 0;
}

```

## **OUTPUT:**

```

Output

/tmp/s.JKBW7km8W.o
The first matrix is:
1 3
5 7
The second matrix is:
8 4
6 2
Product formed using Strassen's algorithm:
26 10
82 34

=== Code Execution Successful ===

```