



Fundamentals of Programming
ME-15
Section B
1st Semester
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Home Task:

1. Write a C++ code to calculate a factorial of 6.
2. Write a C++ program to calculate distance between two points. The values of coordinates should be input by user.

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

3. Write a code in C++ to take length from user in centimeter and convert it into meter and kilometer.
4. Write a code in C++ that takes values of a and b from the user and displays result of polynomial $a^2 + 2ab + b^2$.

```
#include<iostream>;
```

```
#include<cmath> // this is important to mention, otherwise the 'sqrt' and the 'pow' won't be declared.
```

```
using namespace std;
```

```
int main(){
```

```
    float d, x1, x2, y2, y1;
```

```
    cout<<"Enter x1 coordinate"<<endl;
```

```
    cin>>x1; //input variable x1
```

```
    cout<<"Enter x2 coordinate"<<endl;
```

```
    cin>>x2;
```

```
    cout<<"Enter y1 coordinate"<<endl;
```

```
    cin>>y1;
```

```
    cout<<"Enter y2 coordinate"<<endl;
```

```
    cin>>y2;
```

```
    d = sqrt(pow(x2-x1,2) + pow(y2-y1,2)); //formula for distance
```

```
    cout<<"Distance between two points is:"<< d <<endl;
```

```
return 0; }
```

```
D:\Downloads\Home Task 481755.exe
Enter x1 coordinate
2
Enter x2 coordinate
5
Enter y1 coordinate
7
Enter y2 coordinate
9
Distance between two points is:3.60555
-----
Process exited after 5.475 seconds with return value 0
Press any key to continue . . .
```

```
#include <iostream>
using namespace std;

int main(){
    float centimeters, meters, kilometers; //used float so that the answer can be given in
decimals
    cout<<"Enter length in centimeters:"<<endl;
    cin>>centimeters;
    meters=centimeters/100; //conversion to meters
    cout<<"Length in meters:"<< meters << endl;
    kilometers=centimeters/100000; //conversion to kilometers
    cout<<"Length in kilometers:"<< kilometers << endl;

    return 0;}
```

```
D:\Downloads\Home Task 481755.exe
Enter length in centimeters:
60
Length in meters:0.6
Length in kilometers:0.0006
-----
Process exited after 3.399 seconds with return value 0
Press any key to continue . . .
```

```
#include <iostream>
#include<cmath>
using namespace std;
```

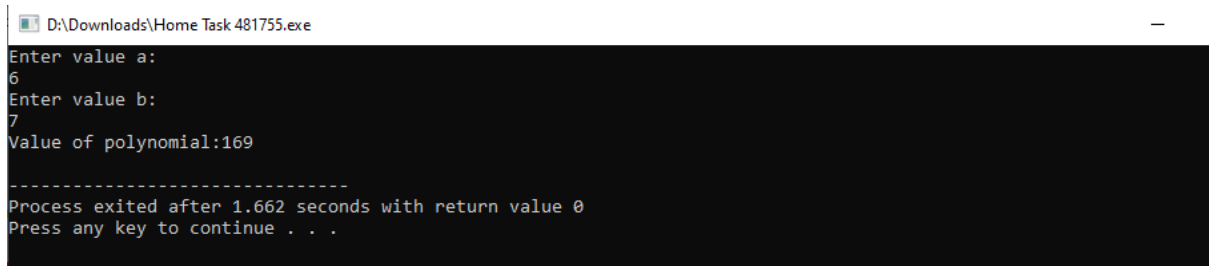
```

int main(){
    int a, b, c;
    cout<<"Enter value a:"<<endl;
    cin>>a;
    cout<<"Enter value b:"<<endl;
    cin>>b;

    c = pow(a,2)+2*a*b+pow(b,2); //formula for polynomial

    cout<<"Value of polynomial:"<< c << endl;
return 0;}

```



```

D:\Downloads\Home Task 481755.exe
Enter value a:
6
Enter value b:
7
Value of polynomial:169
-----
Process exited after 1.662 seconds with return value 0
Press any key to continue . . .

```

```

#include<iostream>;
using namespace std;
int main(){
    int a = 6, n;
    cout<<"Enter number:"<<endl;
    cin>> a;
    n = a*(a-1)*(a-2)*(a-3)*(a-4)*(a-5); //formula for the factorial of 6
    cout<<"Value of factorial:"<< n << endl; //necessary to write second variable so
that the answer is given
return 0;}

```

D:\Downloads\Home Task 481755.exe

Enter number:

6

Value of factorial:720

Process exited after 1.717 seconds with return value 0

Press any key to continue . . .