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ME-15 (C) 456490

## **Fundamentals of Programming**

### **Assignment # 1**

### **Lab Manual # 1**

#### **Home Tasks:**

#### **QUESTION # 1:**

```
#include <iostream>
```

```
#include <cmath>
```

```
Using namespace std;
```

```
Int main() {
```

```
Int x1, y1, x2, y2;
```

```
cout<<"Enter coordinates of the first Point: ";
```

```
cin>>x1>>y1>>;
```

```
cout<<"Enter coordinates of the second Point: ";
```

```
cin>>x2>>y2>>;
int distance = sqrt((x2-x1)*(x2-x1)+(y2-y1)* y2-y1));
cout<<"Distance between the two points is: "
<<distance<< endl;
return 0;
}
```

## QUESTION # 2:

```
#include <iostream>
```

```
using namespace std;
```

```
int main() {
```

```
int centimeters;
```

```
cout << "Enter a length in centimeters: ";
```

```
cin >> centimeters;
```

```
// Convert to meters (1 meter = 100 centimeters)
```

```
int meters = centimeters / 100;
```

```
// Convert to kilometers (1 kilometer = 100000
centimeters)

int kilometers = centimeters / 100000;

cout << "Length in meters: " << meters << " meters"
<< endl;

cout << "Length in kilometers: " << kilometers << "
kilometers" << endl;

return 0;

}
```

### **QUESTION # 3:**

```
#include <iostream>

int main() {
```

```
    double a, b;
```

```
    std::cout << "Enter 'a' and 'b': ";
```

```
    std::cin >> a >> b;
```

```
    double result = a * a + 2 * a * b + b * b;
```

```
std::cout << "Result: " << result << std::endl;

return 0;

}
```

#### **QUESTION # 4:**

```
#include <iostream>

using namespace std;

int main() {

    double fahrenheit;

    cout << "Enter temperature in Fahrenheit: ";

    cin >> fahrenheit;

    cout << "Temperature in Celsius: " << (fahrenheit - 32) *
5/9 << "°C" << endl;

    return 0;

}
```

## Lab Manual # 2

### Home Tasks

#### QUESTION # 1:

```
#include <iostream>
```

```
using namespace std;
```

```
int main() {
```

```
    int score;
```

```
    char grade;
```

```
    cout << "Enter the student's score: ";
```

```
    cin >> score;
```

```
    if (score >= 90) grade = 'A';
```

```
    else if (score >= 75) grade = 'B';
```

```
    else if (score >= 60) grade = 'C';
```

```
    else if (score >= 45) grade = 'D';
```

```
    else grade = 'F';
```

```
    cout << "The student's grade is: " << grade << endl;
    return 0;
}
```

## **QUESTION # 2:**

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

int main() {
    int number;
    cout << "Enter an integer: ";
    cin >> number;
    if (number % 2 == 0 && number % 5 == 0) {
        cout << "The number is both even and divisible by
5." << endl;
    } else {
```

```
        cout << "The number is not even and divisible by 5."
<< endl;

    }

    return 0;

}
```

### **QUESTION # 3:**

```
#include <iostream>

using namespace std;
```

```
int main() {

    int year;

    cout << "Enter a year: ";

    cin >> year

    if ((year % 4 == 0 && year % 100 != 0) || (year % 400
== 0)) {

        cout << year << " is a leap year." << endl;
```

```
    } else {  
        cout << year << " is not a leap year." << endl;  
    }  
  
    return 0;  
}
```

#### **QUESTION # 4:**

```
#include <iostream>  
  
using namespace std;  
  
int main() {  
    double gpa;  
    double attendance;  
    cout << "Enter the student's GPA: ";  
    cin >> gpa;  
    cout << "Enter the student's attendance percentage: ";  
    cin >> attendance;
```



```
if (gpa >= 3.5 && attendance >= 80) {  
    cout << "The student is eligible for a scholarship." <<  
endl;  
    } else {  
        cout << "The student is not eligible for a  
scholarship." << endl;  
    }  
    return 0;
```