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Batch 1

FYMCA-B

03

Assignment 3

Code:

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

class Complex {
private:
    double real;
    double imaginary;

public:

    Complex() : real(0.0), imaginary(0.0) {}


    Complex(double r, double i) : real(r), imaginary(i) {}


    friend Complex operator+(const Complex& c1, const Complex& c2);


    friend Complex operator-(const Complex& c1, const Complex& c2);


    Complex multiply(const Complex& other) const;


    Complex divide(const Complex& other) const;
```

```
    void display() const {
        cout << "Result: " << real << " + " << imaginary << "i" << endl;
    }
};


Complex operator+(const Complex& c1, const Complex& c2) {
    return Complex(c1.real + c2.real, c1.imaginary + c2.imaginary);
}


Complex operator-(const Complex& c1, const Complex& c2) {
    return Complex(c1.real - c2.real, c1.imaginary - c2.imaginary);
}


Complex Complex::multiply(const Complex& other) const {
    return Complex((real * other.real) - (imaginary * other.imaginary),
                   (real * other.imaginary) + (imaginary * other.real));
}


Complex Complex::divide(const Complex& other) const {
    double denominator = (other.real * other.real) + (other.imaginary * other.imaginary);
    return Complex(((real * other.real) + (imaginary * other.imaginary)) / denominator,
                   ((imaginary * other.real) - (real * other.imaginary)) / denominator);
}

int main() {

    Complex c1(2.0, 3.0);
    Complex c2(1.0, -2.0);
```

```
    Complex result_add = c1 + c2;
    Complex result_sub = c1 - c2;

    result_add.display();
    result_sub.display();



    Complex result_mul = c1.multiply(c2);
    Complex result_div = c1.divide(c2);

    result_mul.display();
    result_div.display();

    return 0;
}
```

Output