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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);
```

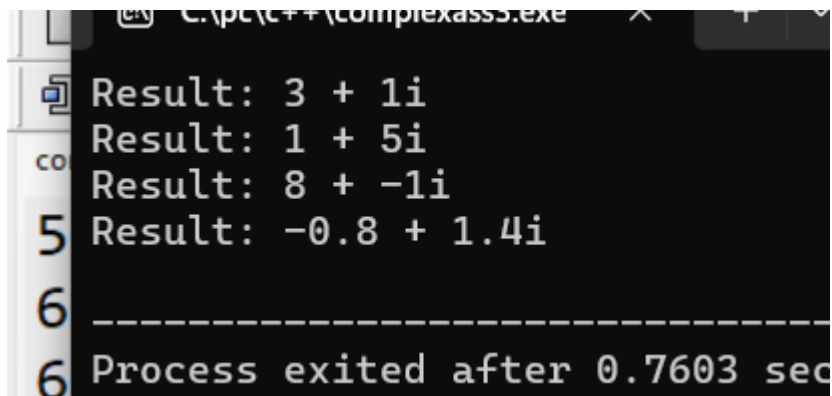
```
result_mul.display();
```

```
result_div.display();
```

```
return 0;
```

```
}
```

Output



The screenshot shows a terminal window with the following output:

```
Result: 3 + 1i
Result: 1 + 5i
Result: 8 + -1i
Result: -0.8 + 1.4i
-----
Process exited after 0.7603 sec
```