Diffchecker

- 35 Removals + 56 Additions

```
struct Complex
{
        double realValue;
        double imagValue;
};

void display(const Complex &c)
{
        if (c.realValue == 0 && c.imagValue == 0)
                cout << "0" << endl;
        else if (c.realValue == 0)
                cout << c.imagValue << "i" << endl;
        else if (c.imagValue == 0)
                cout << c.realValue << endl;
        else
        {
                if (c.imagValue > 0)
                        cout << c.realValue << "+" << c.imagValue << "i" << endl;
                else if (c.imagValue < 0)
                        cout << c.realValue << c.imagValue << "i" << endl;
        }
}

Complex conjugate(const Complex &c)
{
        Complex conj = c;
        if (c.imagValue != 0)
                conj.imagValue *= -1;

        return conj;
```

```
class Complex
{
private:
        double realValue;
        double imagValue;
public:
        double getRealValue() const
        {
                return realValue;
        }

        double getImagValue() const
        {
                return imagValue;
        }

        void setRealValue(double r)
        {
                realValue =r;
        }
        void setImagValue(double i)
        {
                imagValue = i;
        }

};

void display(const Complex &c)
{
        if (c.getRealValue() == 0 && c.getImagValue() == 0)
                cout << "0" << endl;
        else if (c.getRealValue() == 0)
                cout << c.getImagValue() << "i" << endl;
        else if (c.getImagValue() == 0)
                cout << c.getRealValue() << endl;
        else
        {
                if (c.getImagValue() > 0)
                        cout << c.getRealValue() << "+" << c.getImagValue() << "i" << endl;
                else if (c.getImagValue() < 0)
                        cout << c.getRealValue() << c.getImagValue() << "i" << endl;
        }
}

Complex conjugate(const Complex &c)
{
        Complex conj = c;
        if (c.getImagValue() != 0)
                conj.setImagValue(c.getImagValue() * -1);

        return conj;
```

```
}

Complex sum(const Complex &c1, const Complex &c2)
{
        Complex c3;
        c3.realValue = c1.realValue + c2.realValue;
        c3.imagValue = c1.imagValue + c2.imagValue;
        return c3;
}
Complex difference(const Complex &c1,const Complex &c2)
{
        Complex c3;
        c3.realValue = c1.realValue - c2.realValue;
        c3.imagValue = c1.imagValue - c2.imagValue;
        return c3;
}
Complex multiply(const Complex &c1,const Complex &c2)
{
        Complex c3;
        c3.realValue = (c1.realValue * c2.realValue) - ((c1.imagValue * c2.imagValue));

        c3.imagValue = (c1.realValue*c2.imagValue) + (c1.imagValue*c2.realValue);

        return c3;
}

int main()
{
        Complex w;
        w.realValue = 2;
        w.imagValue = 0;
        display(w);
        cout << endl;

        Complex x;
        x.realValue = -4;
        x.imagValue = -2;
        display(x);
        cout << endl;

        Complex y;
        y.realValue = 5;
        y.imagValue = -1;
        display(y);
        cout << endl;

        Complex z;
        z.realValue = 0;
        z.imagValue = -1;
        display(z);
        cout << endl;

        Complex result = difference(multiply(sum(w, z), conjugate(x)), y);
        cout << "Result = ";
        display(result);

        return 0;
}
```

```
}

Complex sum(const Complex &c1, const Complex &c2)
{
        Complex c3;
        c3.setRealValue(c1.getRealValue() + c2.getRealValue());
        c3.setImagValue(c1.getImagValue() + c2.getImagValue());
        return c3;
}
Complex difference(const Complex &c1,const Complex &c2)
{
        Complex c3;
        c3.setRealValue(c1.getRealValue() - c2.getRealValue());
        c3.setImagValue(c1.getImagValue() - c2.getImagValue());
        return c3;
}
Complex multiply(const Complex &c1,const Complex &c2)
{
        Complex c3;
        c3.setRealValue((c1.getRealValue() * c2.getRealValue()) - ((c1.getImagValue() *
c2.getImagValue())));
        c3.setImagValue((c1.getRealValue()*c2.getImagValue()) +
(c1.getImagValue()*c2.getRealValue()));
        return c3;
}

int main()
{
        Complex w;
        w.setRealValue(2);
        w.setImagValue(0);
        display(w);
        cout << endl;

        Complex x;
        x.setRealValue(-4);
        x.setImagValue(-2);
        display(x);
        cout << endl;

        Complex y;
        y.setRealValue(5);
        y.setImagValue(-1);
        display(y);
        cout << endl;

        Complex z;
        z.setRealValue(0);
        z.setImagValue(-1);
        display(z);
        cout << endl;

        Complex result = difference(multiply(sum(w, z), conjugate(x)), y);
        cout << "Result = ";
        display(result);

        return 0;
}
```