

**Aim: To write Program to declare a structure to declare a complex number .Write a function to add, subtract, multiply and divide two complex numbers.**

**Source Code:**

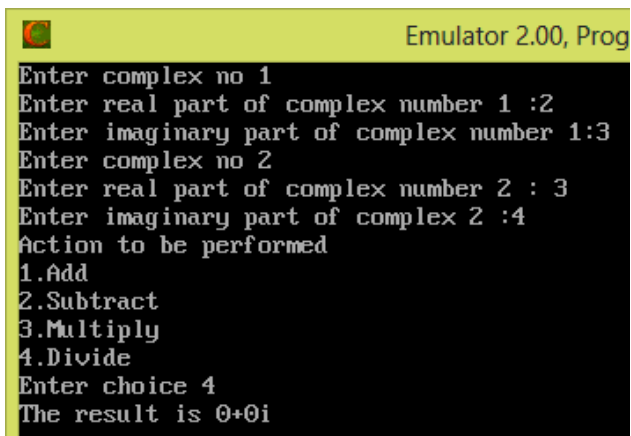
```
#include<iostream.h>
#include<process.h>
#include<conio.h>
struct complex
{
    int x, y;
};
complex add(complex, complex);
complex add(complex a1, complex a2)
{
    complex a3;
    a3.x=a1.x+a2.x;
    a3.y=a1.y+a2.y;
    return(a3);
}
complex sub(complex, complex);
complex sub(complex a1, complex a2)
{
    complex a3;
    a3.x=a1.x-a2.x;
    a3.y=a1.y-a2.y;
    return(a3);
}
complex mul(complex, complex);
complex mul(complex a1, complex a2)
{
    complex a3;
    a3.x=((a1.x*a2.x)-(a1.y*a2.y));
    a3.y=((a1.x*a2.y)+(a2.x*a1.y));
    return(a3);
}
complex div(complex, complex);
complex div(complex a1, complex a2)
{
    complex a3;
    a3.x=((a1.x*a2.y)+(a1.y*a2.y))/((a2.x*a2.x)+(a2.y*a2.y));
    a3.y=((a2.x*a1.y)-(a1.x*a2.y))/((a2.x*a2.x)+(a2.y*a2.y));
    return(a3);
}
void main()
{
    clrscr();
    complex a1, a2;
    int choice;
    cout<<"Enter complex no 1\n";
```

```

cout<<"Enter real part of complex number 1 :";
cin>>a1.x;
cout<<"Enter imaginary part of complex number 1:";
cin>>a1.y;
cout<<"Enter complex no 2\n";
cout<<"Enter real part of complex number 2 : ";
cin>>a2.x;
cout<<"Enter imaginary part of complex 2 :";
cin>>a2.y;
cout<<"Action to be performed";
cout<<"\n1.Add"
    <<"\n2.Subtract"
    <<"\n3.Multiply"
    <<"\n4.Divide"
    <<"\nEnter choice ";
complex a3;
cin>>choice;
if(choice==1)
{
    a3=add(a1,a2);
    cout<<"The result is "<<a3.x<<"+"<<a3.y<<"i";
}
else if(choice==2)
{
    a3=sub(a1,a2);
    cout<<"The result is "<<a3.x<<"+"<<a3.y<<"i";
}
else if(choice==3)
{
    a3=mul(a1,a2);
    cout<<"The result is "<<a3.x<<"+"<<a3.y<<"i";
}
else if(choice==4)
{
    a3=div(a1,a2);
    cout<<"The result is "<<a3.x<<"+"<<a3.y<<"i";
}
else
    exit(0);
getch();
}

```

Output:



```

Emulator 2.00, Prog
Enter complex no 1
Enter real part of complex number 1 :2
Enter imaginary part of complex number 1:3
Enter complex no 2
Enter real part of complex number 2 : 3
Enter imaginary part of complex 2 :4
Action to be performed
1.Add
2.Subtract
3.Multiply
4.Divide
Enter choice 4
The result is 0+0i

```