Question1:- Write a program to print the area and perimeter of a triangle having sides of 3, 4 and 5 units by creating a class named 'Triangle' with the constructor having the three sides as its parameters.

Answer:-

```
#include<iostream>
#include<math.h>

using namespace std;

class Triangle
{
public:
void area(int a,int b,int c);
void perimeter(int a,int b,int c);
};

void Triangle::area(int a,int b,int c)
{
float s=((a+b+c)/2.0),A=sqrt(s*(s-a)*(s-b)*(s-c));
cout<<"Area of a triangle is: "<<A<<" sq. units\n";
}

void Triangle::perimeter(int a,int b,int c)
{
cout<<"Perimeter of a triangle is: "<<a+b+c<<" units\n";
}

int main()
{
Triangle tr1;
int side1=3,side2=4,side3=5;
```

```
tr1.area(side1,side2,side3);

tr1.perimeter(side1,side2,side3);

return 0;

}
```

- Question2:- Write a program to print the area of two rectangles having sides (4,5) and (5,8) respectively by creating a class named 'Rectangle' with a function named 'Area' which returns the area. Length and breadth are passed as parameters to its constructor.

Answer:-

```
#include <iostream>


using namespace std;


class Rect

{

private:

int a, b;


public:

Rect(int a, int b)

{

this->a = a;

this->b = b;

}

int area()

{

return this->a * this->b;

}

};


int main()
```

```
{
Rect obj = Rect(3, 4);
cout << obj.area() << "\n";

return 0;
}
```

- Question3:- Write a program to print the area of a rectangle by creating a class named 'Area' taking the values of its length and breadth as parameters of its constructor and having a function named 'returnArea' which returns the area of the rectangle. Length and breadth of the rectangle are entered through keyboard.

Answer:-

```
#include<iostream>
using namespace std;
class Area{
public:
int len,width;
void getArea(){
cout<<"Enter the length: ";
cin>>len;
cout<<"Enter width: ";
cin>>width;
}
void returnArea(){
cout<<"Area is: "<<len*width;
}
};
int main(){
Area A;
A.getArea();
```

```
A.returnArea();
}
```

- Question 4:- Print the average of three numbers entered by the user by creating a class named 'Average' having a function to calculate and print the average without creating any object of the Average class.

Answer:-

```
#include <iostream>
using namespace std;
class Average{
public:
static float calcAverate(float a, float b, float c){
return (a + b + c) / 3;
}
};

int main(){
cout<<"Enter three numbers: ";
float a, b, c;
cin>>a;
cin>>b;
cin>>c;
cout<<"The average is: "<<Average::calcAverate(a,b,c)<<endl;
return 0;
}
```

- Question5:- Print the sum, difference and product of two complex numbers by creating a class named 'Complex' with separate functions for each operation whose real and imaginary parts are entered by the user.

Answer:-

```
#include<iostream>

using namespace std;

class Complex
{
double re;
double im;
public:
//Default constructor
Complex(){}
//Init constructor
Complex(double _re, double _im)
:re(_re),im(_im){}
//Copy constructor
Complex(Complex& x)
{
re=x.re;
im=x.im;
}
Complex operator+ (Complex& x)
{
re=re+x.re;
im=im+x.im;
return this;
}
Complex operator- (Complex& x)
{
re=re-x.re;
```

```
im=im-x.im;
return *this;
}
Complex operator (Complex& x)
{
re=re*x.re-im*x.im;
im=re*x.im+x.re*im;
return *this;
}
friend ostream& operator<<(ostream&, Complex&);
friend istream& operator>>(istream&, Complex&);
// friend Complex operator+(Complex&,Complex&);
};
istream& operator>> (istream& is, Complex& x)
{
cout<<"Please, enter a real part of complex number: ";
is>>x.re;
cout<<"Please, enter an imaginary part of complex number: ";
is>>x.im;
return is;
}

ostream& operator<< (ostream& os, Complex& x)
{
os<<x.re;
if(x.im>0)
{
os<<"+"<<x.im<<"i";
}
else if(x.im<0)
{
```

```
os<<x.im<<"i";
}
return os;
}



int main()
{
Complex a,b;
cin>>a;
cin>>b;
cout<<"You entered two complex numbers:\n";
cout<<"a= "<<a
<<"\nb= "<<b<<endl;
a+b;
cout<<"a+b= "<<a<<endl;
a-b;
cout<<"a-b= "<<a<<endl;
a*b;
cout<<"a*b= "<<a<<endl;
}
```