

1. Create a class name Average. Declared three variables that are entered by the user. Pass those variables as constructor arguments. Create a method that calculates the average of three numbers and returns it. And show the result of average.

Hint: $\text{average} = \text{num} + \text{num2} + \text{num3} / 3$

2. Create a class name Triangle. Which have three private data member base, perpendicular, and hyperbola. Create a parametrized constructor to initialize all data members' values. Also, create a default constructor and set values respectively 3,4,5 on base, perpendicular, and hyperbola. Create two objects and call parameterized and non-parameterized constructors. Now create non-members void methods peri_area which takes a Triangle object. Calculate the perimeter and area of that method. Also, show the result of the area and perimeter for each object.

Hint:

// Include the cmath library first

#include <cmath>

*Calculate area: $\text{sqrt}(s * (s - \text{base}) * (s - \text{perpendicular}) * (s - \text{hyperbola}))$*

Here, $s = \text{base} + \text{perpendicular} + \text{hyperbola}$

Calculate Perimeter: $\text{base} + \text{perpendicular} + \text{hyperbola}$

3. Create a class name Triangle. Which have three private data member base, perpendicular, hyperbola, and two public data member area, and perimeter. Create a parametrized constructor to initialize all private data members' values. Also, create a default constructor and set values respectively 3,4,5 on base, perpendicular, and hyperbola. Create two objects and call parameterized and non-parameterized constructors. Now create non-members methods peri_area which takes a Triangle object and returns an object. Calculate the perimeter and area inside that method with data members' area and perimeter. Also, show the area and perimeter results for each object.

Note: Show the output in the main function.

Hint: *Using problem 2 hint for calculation.*

4. Create a class named millionaire. Suppose there are four millionaires here. Each has 3,4, 5, and 6 (3 to 6) cars respectively. Create some methods for setting the name of cars whose names are cars(). Also, display the names of cars as output in methods.

Hint: Cars Name will be string. Like: Orobo, Muscle, Halla, Beast etc

Solution:

Problem: 1

```
#include<iostream>
using namespace std;
class Average{
    public:
    int a,b,c;

    Average(int x, int y, int z){
        a = x;
        b = y;
        c = z;
    };
    int ave(){
        int ave = (a + b + c)/3;
        return ave;
    }
};
int main(){
    int x,y,z;
    cin >> x >> y >> z;
    Average ob(x,y,z);
    cout << "Average: " << ob.ave() << endl;
}
```

Output:

```
10
10
10
Average: 10
```

Problem 2:

```
#include <cmath>
#include <iostream>
using namespace std;
class Triangle{
    private:
        float base, perpendicular, hyperbola;
    public:
        Triangle(float b, float p, float h){
            base = b;
            perpendicular = p;
            hyperbola = h;
        }

        Triangle(){
            base = 3;
            perpendicular = 4;
            hyperbola = 5;
        }
        friend void peri_area(Triangle ob);
};

void peri_area(Triangle ob){
    float s = ob.base + ob.perpendicular + ob.hyperbola;
    float area = sqrt(s*(s - ob.base) * (s - ob.perpendicular) * (s
- ob.hyperbola));
    float perimeter = ob.base + ob.perpendicular + ob.hyperbola;
    cout << "Area: " << area << endl;
    cout << "perimeter: " << perimeter << endl;
}

int main(){
    Triangle ob(2 ,32 ,21.2), ob1;
    peri_area(ob);
    peri_area(ob1);
}
```

Output:

```
Area: 1521.98
perimeter: 55.2
Area: 77.7689
perimeter: 12
```

Problem: 3

```
#include <cmath>
#include <iostream>
using namespace std;
class Triangle{
    private:
        float base, perpendicular, hyperbola;
    public:
        float area, perimeter;
        Triangle(float b, float p, float h){
            base = b;
            perpendicular = p;
            hyperbola = h;
        }

        Triangle(){
            base = 3;
            perpendicular = 4;
            hyperbola = 5;
        }
        friend Triangle peri_area(Triangle ob);
};

Triangle peri_area(Triangle ob){
    float s = ob.base + ob.perpendicular + ob.hyperbola;
    ob.area = sqrt(s*(s - ob.base) * (s - ob.perpendicular) * (s -
ob.hyperbola));
    ob.perimeter = ob.base + ob.perpendicular + ob.hyperbola;
    return ob;
}

int main(){
```

```

Triangle ob(2 ,32 ,21.2), ob1;
Triangle obOutput = peri_area(ob);
Triangle ob1Output = peri_area(ob1);

cout << "Area: " << obOutput.area << endl;
cout << "perimeter: " << obOutput.perimeter << endl;

cout << "Area: " << ob1Output.area << endl;
cout << "perimeter: " << ob1Output.perimeter << endl;
}

```

Output:

```

Area: 1521.98
perimeter: 55.2
Area: 77.7689
perimeter: 12

```

Problem: 4

```

#include<iostream>
using namespace std;

class millionaire{
public:
void cars(string a, string b, string c){
    cout << a << " " << b << " " << c << endl;
}
void cars(string a, string b, string c , string d){
    cout << a << " " << b << " " << c << " " << d << endl;
}
void cars(string a, string b, string c , string d, string e){
    cout << a << " " << b << " " << c << " " << d << " " << e <<
endl;
}
void cars(string a, string b, string c , string d, string e,
string f){
    cout << a << " " << b << " " << c << " " << d << " " << e <<
" " << f << endl;
}
}

```

```
    }  
};  
  
int main(){  
    millionaire ob;  
    ob.cars( "Orobo", "Muscle", "Halla");  
    ob.cars( "Orobo", "Muscle", "Halla", "Beast");  
    ob.cars( "Orobo", "Muscle", "Halla", "Berry", "BMW");  
    ob.cars( "Orobo", "Muscle", "Halla", "Berry", "BMW", "Audi");  
}
```

Output:

```
Orobo Muscle Halla  
Orobo Muscle Halla Beast  
Orobo Muscle Halla Berry BMW  
Orobo Muscle Halla Berry BMW Audi
```