#include <iostream>
using namespace std;
class Point {
private:          // Data members (private)
    int x, y;
public:           // Member functions
    static int n;     // Constructor to initialize x, y values
    Point (int,int); // Constructor to use default values x=0, y=0
    // Both constructors should also increment n
    int get_x();
    int get_y();
    int get_n();
    void set_values(int,int);
    ~Point ();    //Destructor should decrement n};

Problem: Write code for the class functions (6 of them) that do what the function names suggest or the comments indicate.

#include <iostream>
using namespace std;
int main () {
    Point  *c;
    Point * d = new Point[2];
c= d;
d[0].set_values (1,2);
c->set_values (3,4);
d[1]->set_values (5,6);
c=c+1;
cout << c->get_n() << endl;
cout << c->get_x() << endl;
cout << c->get_y() << endl;
return 0;}

Problem: What is the output of the program (assume that we are using the class Point from Program1)?

#include <iostream>
using namespace std;
class CRectangle {
    int x, y;
public:
    CRectangle (int a,int b){x=a; y=b;}
    int usingthis () {return ((this->x)*(this->y));}
};
#include <iostream>
using namespace std;
int main(int argc, char** argv){
cout << argc << endl;
cout << argv[0] << endl;
CRectangle rect (2,5);
cout << rect.usingthis();
return 0;}

Problem: What is the output of the program when we type the name of the program (executable) on the command line?

#include <iostream>
using namespace std;
class CPolygon {
    int i;
    cout << "type 0 or 1" << endl;
cin >> i;
    if (i==0) ppoly = new CRectangle;
    else ppoly = new CTriangle;
    ppoly->set_values (4,5);
    ppoly->printarea();
delete ppoly;
return 0;}

Problem: Using the same class code for CPolygon, CRectangle, and CTriangle from poly.cpp, what will be the output of the program if a user types 0, and if the user types 1?

2. Write the code that overloads the + operator for the Point class. The function should return an object of Point class whose x component is the sum of the x components of the two points and the y component is the sum of the y components of the two points. (3 points)

3. Write a friend function that returns the sum of the x and y components of the Point class. Show the code for this function, and show how this function will be declared in the Point class. (3 points)