CMPS 148: Homework 4

Write a Rectangle class that has 2 **private** integer variables – height and width. Constrain the height and width such that they can never be greater than 80 (if someone tries to set width to 90, you should set it to 80 instead).

The class should define appropriate getters and setters for its private variables. It should also support the following overloaded operators:

<<	Draws the rectangle using * symbols *For example, if r is a rectangle whose width = 3 and height = 4, the << operator shall print the following:* `***` `***` `***` `***`
>>	Reads two integers (separated by a space) – width height on a single line.
[…]	Where r[0] returns r's width and r[1] returns r's height;
<, <=, ==, !=, >, >=	Where the operators compare the **area** of the rectangle

Your class should work perfectly with the following program:

```
#include <iostream>
#include <fstream>
#include <string>
#include “Rectangle.h”
using namespace std;
int main() {
    ifstream in("input.txt");

    int numRectangles;
    in >> numRectangles;

    for ( int i = 0; i < numRectangles; i++ ) {
      Rectangle r;
      in >> r;
      cout << r[0] << " x " << r[1] << endl;
      cout << r;
    }
    Rectangle r1(4, 5), r2(10, 2);
    if ( r1 == r2 ) {
      cout << "Both rectangles have the same area!" << endl;
    }
}
```

Where the input file (input.txt) contains the following information:

Line 1: number of rectangles
All lines following should have the height and width of a single rectangle

Sample input.txt

```
3
2 7
9 1
3 3
```

Sample output (to console)

```
2 x 7
**
**
**
**
**
**
**

9 x 1
*********

3 x 3
***
***
***

Both rectangles have the same area!
```