Programming Lab Exercise 2b

Before you start:
Create a folder called l**ab2** inside your personal **java** folder you created at the start. Save all your work for lab 2 in this folder. As usual name your files according to the question e.g. **lab2bq1.java** unless otherwise requested in the question.

Using Eclipse:
Your understanding of the concept of classes and methods are examined here, in particular:

- Writing class definitions
- Creating instances of classes
- Calling object methods
- Accessing data belonging to an object instance

Complete each question (successfully!) before you move on to the next one.

Exercises:

Q1.
Develop a java class called `Rectangle`. The class has attributes `length` and `width`, each of which defaults to 1 in the constructor. It has `set` and `get` methods for both `length` and `width`. The `set` methods should verify that length and width are each numbers larger than 0.0 and less than or equal to 40.0. Lastly, the class should have a `toString`() method which will return a string like the following:

"Length = 5, Width = 10"

Write a suitable driver program to test each of your methods in class Rectangle.

Q2:
Extend your Rectangle class in Q1 by adding two new methods `getArea`() and `getPerimeter`() that calculate the area and perimeter of the rectangle respectively. Test these by calling the new methods from your driver program.

Q3:
Extend your Rectangle class in Q1 by adding a new method `printRectangle`() which will draw the rectangle object by printing "*" to delineate the edges.
e.g. if you create a rectangle object with width = 5 and length = 7 and call the `printRectangle`() method you should get the following output:

```
*****
*   *
*   *
*   *
*   *
*   *
*****
```

Similarly, an object with width = 10 and length = 4, should output:

```
**********
*        *
*        *
**********
```