CS8, Spring 2017, UCSB
Hw2: Worth 50% of Lab02 score (50 total points)

Print this form, staple loose pages together, and write your answers on it.

Accepted: On paper, at *your* lab section on Tuesday, April 18.
         Place on the front desk as you walk in, before getting seated.

Name (2 pts): _____

Umail (2 pts): _____@umail.ucsb.edu

Lab Time (2 pts) Circle one: 8am   9am   10am   11am

To answer the questions on this homework, it will be very helpful to have a
computer system running Python 3.x available to you.

   1. Read at least pages 23-28 about Abstraction and using the turtle module.
You may like to try the statements from the book as you read about them –
you'll learn more, and have more fun if you do.

Remember that if you want to use the turtle module, first you must type
the following command at the Python prompt:

     >>> import turtle

Then, answer these questions:

     a. (2 pts) What do you type to create a new Turtle named bob?

     b. (2 pts) Once you have a turtle named bob, what do you type to
cause bob to move forward 50 pixels?

     c. (2 pts) If bob's current heading is 0 degrees, what direction is
he facing? [Answer geographically: north, northeast, ...]

     d. (2 pts) What do you type to determine bob's current heading?

     e. (3 pts) The book talks about something called a constructor.
What is a constructor?

     f. (2 pts) Which of the questions that you answered above involved
a constructor?

     g. The book talks about something called parameters.
        (2 pts) Which of the answers to the above involves a parameter?

        (1 pt) What was that parameter?

2. (8 pts) Write a sequence of python instructions to draw a rectangle using a turtle named bob that has already been created. Make the rectangle 100 pixels wide and 50 pixels high. The turtle begins in the bottom, lefthand corner of the rectangle and is facing "east" (to the right). At the end of the sequence of instructions, make sure the turtle is at the same location and facing in the same direction as when it started.

3. (10 pts) Now write a function named drawRectangle that accepts three parameters – a turtle, a width, and a height. This function might be called as follows: drawRectangle(bob, 50, 200). Or at a different time, it may be called for a turtle named sally as follows: drawRectangle(sally, 75, 18). The width is how wide the rectangle is, and the height is how tall it is.

IMPORTANT: Make a copy of this drawRectangle function, electronically or on a separate piece of paper, and bring it to the lab on Tuesday. It is part of Lab02.

4. Read about the range statement on pp. 33-34. Then answer these questions:

a. (3 pts) What range command will result in the sequence [3,6,9,...,30] (i.e., 3 to 30, inclusive, in steps of 3)?

b. (4 pts) Show exactly what will be printed by the following statements.

for i in range(5, 1, -1):
    print(i)

c. (3 pts) What two lines of Python code will print 20,18,16,...,2 (i.e. even numbers counting backwards from 20, ending with 2), where each number is printed on a separate line of output?

End of Hw2