SCORE: (out of 40)

CS 8 – Solving Problems with Computers I
HOMEWORK 1

Print this form and write your answers on it.

Submit this homework (hardcopy) to class. DUE DATE is 04/13/17.

Name: _____

Umail: _____@umail.ucsb.edu

Lab Time Circle one: 3 PM   4 PM   5 PM   6 PM

To answer some of the questions on this homework, it will be very helpful to have a computer system running Python version 3.x (e.g., 3.4.3) available to you. To find such as system, you can either:

- Log on to one of the computers in the CSIL computer lab, and access Python 3 there - see posted Lab00 for instructions.
- Download Python 3 to your PC or Mac, and access Python 3 there.

1. (15 pts) Why are Ada Lovelace, Alan Turing, and Grace Hopper important figures in Computer Science? This is not an essay question, so contain your answer to the space below.

2. Pages 10-17 in the textbook present the three types of numbers that we can work with in the Python programming language. These include integers, floating-point, and complex numbers. Which type should be used to represent each of the following values? (Circle the correct one in each case)

a. (2 pts) Your GPA?

               integer   floating-pt   complex

b. (2 pts) The number of students registered for this class?

               integer   floating-pt   complex

c. (2 pts) The square root of -4 ?

               integer   floating-pt   complex

3. (2 pts) In ordinary math, we usually use the letter **i** to represent the square root of negative 1, and we write complex numbers in the format (a + b**i**). What letter of the alphabet is used in Python to represent the imaginary part of a complex number?

4. (3 pts) What can you type in Python to compute 100 divided by 11, and get back an **exact** result (i.e. a result with decimals)?

5. (2 pts) If you type your answer to problem 4 in Python, what **exact** answer do you get back? (Write the entire answer---probably lots of decimal places)

6. (3 pts) What can you type to divide 100 by 11, and discard any remainder?

7. (2 pts) What is the **exact** result if you type the expression from question 6 at the Python prompt?

8. Read pages 17-23 in the textbook about variables and the assignment statement, and then answer these questions:
   a. (3 pts) What is the assignment statement that would give the variable **x** the value of 100 divided by 11 (as a floating point number)?

   b. (2 pts) Type that assignment statement into Python. Then type the expression **x * 11** at the Python prompt, which should multiply the value of x by 11. What **exact** result do you get back?

   c. (2 pts) On some computers the answer to the previous question is not surprising but on many computers (including the CSIL lab computers) you get back a surprising result. Were you surprised? Why?