CSI 31 Chapter 1 answers

True/False

1) False 2) True 3) False 4) True (see page 6)

5) False (see page 7), it is vice versa: the syntax is its form, and semantics is its meaning

6) True (see page 11)

7) False,
programming environment is a <u>program</u> that specifically designed to help programmers write programs (has automatic color highlighting, and so forth)

8) True (see page 16)

9) False (see page 17),
a *loop* is a control sequence , which allows to perform the same sequence of statements multiple times.

10) False,
it can be computed by a computer. We've seen a few programs.

Multiple Choice

1. b) 2. d) 3. d) 4. a) 5. b) 6. b) 7. c) 8. b) 9. a) 10) d)

Discussion (5)

program:

```
def main():
        print(“....”)
        x = eval(input(“...”))
        for i in range(10):
                x = 3.9 * x * (1-x)
                print(x)
main()
```

tracing through the program by hand using 0.15 as the input value (using calculator):
0.15 will be assigned to x
then we'll enter a loop:
1st iteration: i = 0, x = 3.9 * 0.15 * (1-0.15) = 0.49725, display 0.49725
2nd iteration: i = 1, x = 3.9 * 0.49725 * (1-0.49725) = 0.974970506, display 0.974970506
3rd iteration: i = 2, x = 3.9 * 0.974970506 * (1-0.974970506) = 0.09517177, display 0.09517177
4th iteration: i = 3, x = 39 * 0.09517177 * (1-0.09517177) = 0.335845009, display 0.335845009
5th iteration: i = 4, x = 3.9 * 0.335845009 * (1-0.335845009) = 0.869907241, display 0.869907241
6th iteration: i = 5, x = 3.9 * 0.869907241 * (1-0.869907241) = 0.441357668, display 0.441357668
7th iteration: i = 6, x = 3.9 * 0.441357668 * (1-0.441357668) = 0.961588199, display 0.961588199
8th iteration: i = 7, x = 3.9 * 0.961588199 * (1-0.961588199) = 0.144051704, display 0.144051704
9th iteration: i = 8, x = 3.9 * 0.144051704 * (1-0.144051704) = 0.480873161, display 0.480873161
10th iteration: i = 9, x = 3.9 * 0.480873161 * (1-0.480873161) = 0.97357324, display 0.97357324
end of for loop

Here is what the Python's interpreter will produce:

```
0.49724999999999997
0.97497050625
0.09517177095121285
0.3358450093643686
0.8699072422927216
0.4413576651876355
0.9615881986142427
0.14405170611022783
0.48087316710014555
0.9735732406265619
```

As you can see, my results are slightly different to what the Python will produce.