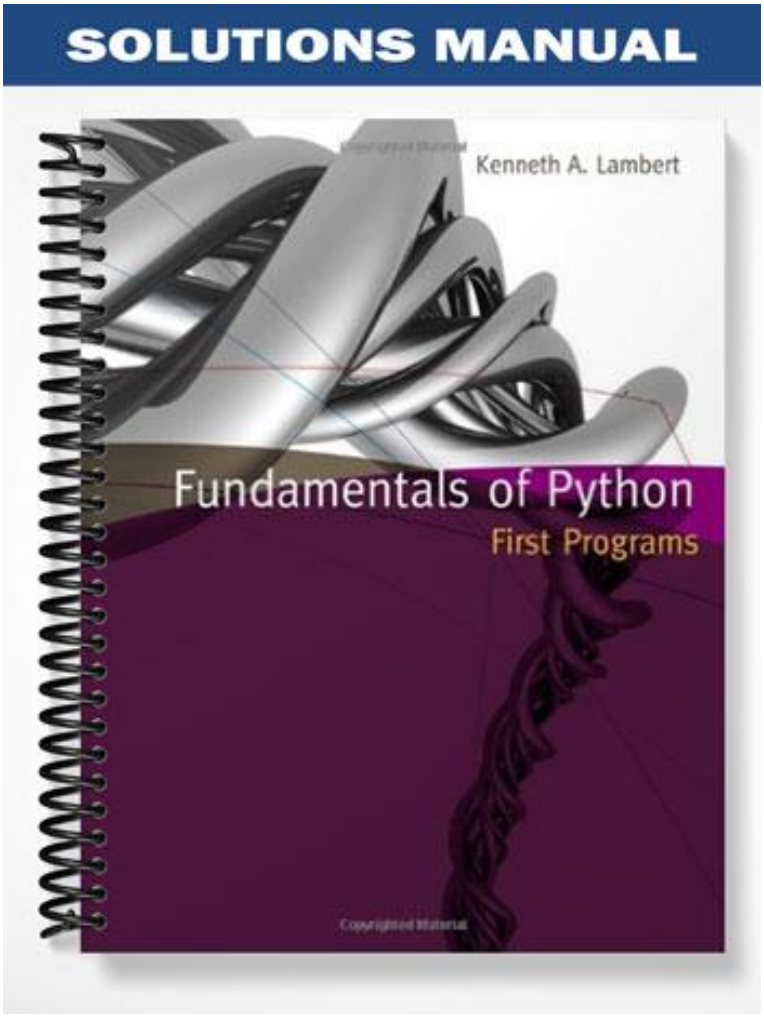
SOLUTIONS MANUAL



Answers to End of Section Exercises for Chapter 2

Exercises 2.1

1. Analysis describes what a system does in terms of its input, outputs, and functions from a user's perspective. Design describes how a system accomplishes its tasks. Coding produces the software for the system. Testing examines whether or not the software does what it is supposed to do.
2. Analysis and design provide detailed blueprints for coding a system. Without these blueprints, it may be difficult to determine whether the system will do what it is supposed to do, and it may be difficult to minimize errors in the code and structure it in a way that eases maintenance.

Exercises 2.3

1. a. `"dogcat"`
   b. `"the dog chases the cat"`
   c. `"dogdogdogdog"`
2. `"Ken Lambert\nComputer Science\nWashington and Lee"`
   ```
   """Ken Lambert
   Computer Science
   Washington and Lee"""
   ```
3. An apostrophe can be included in a string that is enclosed within double quotes.
4. When the Python interpreter encounters a newline character while printing a string, the cursor moves to the next line of output before the rest of the characters are displayed.
5. a, b, and c.
6. Program documentation can inform the reader of the author and purpose of a program and can also describe the strategy or method used in a particular line of code.

Exercises 2.4

1. a. `int`
   b. `float`
   c. `float`
   d. `int`
   e. `str`
2. `int` is the type of integers or whole numbers, whereas `float` is the type of numbers that include a whole part (digits to the left of a decimal point) and a fractional part (digits to the right of the decimal point).
3. a. 3.5576e2
   b. 7.832e-3
   c. 4.3212e0
4. 36 and 38

Exercises 2.5

1. a. 14
   b. 30
   c. 64
   d. 0
   e. 0.66666666666666663
   f. 1
2. a. 5.0
   b. 4
3. Pass the number to the **`round`** function.
4. Pass the number as an argument the **`str`** function and use the result returned with the string and the **`+`** operator.
5. **`x = x + 1`**

Exercises 2.6

1. A function is a piece of code or an algorithm that can be called by name. A function's arguments are data that its caller passes to the function for its use when it is called.

2.
```
import  math
print(math.pow(8, 2), math.pow(5, 4))
```

3. First, import the module. Then, call the **`dir`** function with the module's name as an argument.
4. First, import the module. Then, run the **`help`** function with the function's name, qualified by the module name, as an argument. Example: **`help(math.sqrt)`**

Answers to Review Questions for Chapter 2

1. c
2. d
3. c, d
4. b
5. c
6. b
7. c
8. c

9.
```
from math import sqrt, log
```

10. The **`dir`** function returns a list of the named resources (functions and variables) in its argument, which is a module. The **`help`** function displays all of the documentation for its argument, which can be a module or other resource.