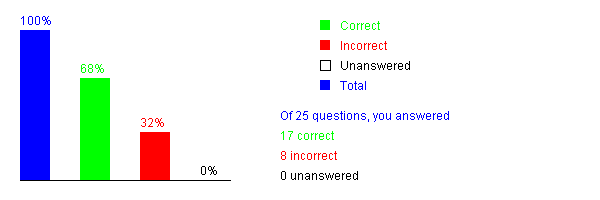
**Introduction to Programming Using Python,**[**Y. Daniel Liang**](http://www.cs.armstrong.edu/liang)

**Chapter 5 Loops**



Please send suggestions and errata to [y.daniel.liang@gmail.com](mailto:y.daniel.liang@gmail.com). Indicate which book you are using. Thanks!

*Section 5.2 The while Loop*

***1***  How many times will the following code print "Welcome to Python"?  
  
count = 0  
while count < 10:  
    print("Welcome to Python")  
    count += 1

 A. 8

 B. 9

 C. 10

 D. 11

 E. 0

The correct answer is C  
Your answer is correct http://www.cs.armstrong.edu/liang/image/correct.jpg

***2***  Analyze the following code.  
  
 count = 0  
 while count < 100:  
     # Point A  
     print("Welcome to Python!")  
     count += 1  
     # Point B  
  
 # Point C

 A. count < 100 is always True at Point A

 B. count < 100 is always True at Point B

 C. count < 100 is always False at Point B

 D. count < 100 is always True at Point C

 E. count < 100 is always False at Point C

The correct answer is AE  
Your answer B is incorrect http://www.cs.armstrong.edu/liang/image/wrong.jpg

***3***  How many times will the following code print "Welcome to Python"?  
  
count = 0  
while count < 10:  
    print("Welcome to Python")

 A. 8

 B. 9

 C. 10

 D. 11

 E. infinite number of times

The correct answer is E  
Your answer is correct http://www.cs.armstrong.edu/liang/image/correct.jpg

*Section 5.3 The for Loop*

***4***  Analyze the following statement:  
  
sum = 0  
for d in range(0, 10, 0.1):  
    sum += sum + d

 A. The program has a syntax error because the range function cannot have three arguments.

 B. The program has a syntax error because the arguments in the range must be integers.

 C. The program runs in an infinite loop.

 D. The program runs fine.

The correct answer is B  
Your answer is correct http://www.cs.armstrong.edu/liang/image/correct.jpg

***5***  Which of the following loops prints "Welcome to Python" 10 times?  
  
A:  
for count in range(1, 10):  
    print("Welcome to Python")  
  
B:  
for count in range(0, 10):  
    print("Welcome to Python")  
  
C:  
for count in range(1, 11):  
  print("Welcome to Python")  
  
D:  
for count in range(1, 12):  
  print("Welcome to Python")

 A. BD

 B. ABC

 C. AC

 D. BC

 E. AB

The correct answer is D  
Your answer E is incorrect http://www.cs.armstrong.edu/liang/image/wrong.jpg

***6***  The function range(5) return a sequence \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 A. 1, 2, 3, 4, 5

 B. 0, 1, 2, 3, 4, 5

 C. 1, 2, 3, 4

 D. 0, 1, 2, 3, 4

The correct answer is D  
Your answer C is incorrect http://www.cs.armstrong.edu/liang/image/wrong.jpg

***7***  Which of the following function returns a sequence 0, 1, 2, 3?

 A. range(0, 3)

 B. range(0, 4)

 C. range(3)

 D. range(4)

The correct answer is BD  
Your answer B is incorrect http://www.cs.armstrong.edu/liang/image/wrong.jpg

***8***  Which of the following function is incorrect?

 A. range(0, 3.5)

 B. range(10, 4, -1)

 C. range(1, 3, 1)

 D. range(2.5, 4.5)

 E. range(1, 2.5, 4.5)

The correct answer is ADE  
Your answer E is incorrect http://www.cs.armstrong.edu/liang/image/wrong.jpg

***9***  Which of the following loops correctly computes 1/2 + 2/3 + 3/4 + ... + 99/100?  
  
A:  
sum = 0  
for i in range(1, 99):  
    sum = i / (i + 1)  
  
print("Sum is", sum)  
  
B:  
sum = 0  
for i in range(1, 100):  
    sum = i / (i + 1)  
  
print("Sum is", sum)  
  
C:  
sum = 0  
for i in range(1.0, 99.0):  
    sum = i / (i + 1)  
  
print("Sum is", sum)  
  
D:  
sum = 0  
for i in range(1.0, 100.0):  
    sum = i / (i + 1)  
  
print("Sum is", sum)

 A. BCD

 B. ABCD

 C. B

 D. CDE

 E. CD

The correct answer is C  
Your answer is correct http://www.cs.armstrong.edu/liang/image/correct.jpg

***10***  The following loop displays \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  
  
for i in range(1, 11):  
    print(i, end = " ")

 A. 1 2 3 4 5 6 7 8 9

 B. 1 2 3 4 5 6 7 8 9 10

 C. 1 2 3 4 5

 D. 1 3 5 7 9

 E. 2 4 6 8 10

The correct answer is B  
Your answer is correct http://www.cs.armstrong.edu/liang/image/correct.jpg

***11***  What is the output for y?  
  
y = 0  
for i in range(0, 10):  
    y += i  
  
print(y)

 A. 10

 B. 11

 C. 12

 D. 13

 E. 45

The correct answer is E  
Your answer is correct http://www.cs.armstrong.edu/liang/image/correct.jpg  
Explanation: y should be 0 + 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 = 45

***12***  What is the output for y?  
  
y = 0  
for i in range(0, 10, 2):  
    y += i  
  
print(y)

 A. 9

 B. 10

 C. 11

 D. 20

The correct answer is D  
Your answer is correct http://www.cs.armstrong.edu/liang/image/correct.jpg

***13***  What is the output for y?  
  
y = 0  
for i in range(10, 1, -2):  
    y += i  
  
print(y)

 A. 10

 B. 40

 C. 30

 D. 20

The correct answer is C  
Your answer is correct http://www.cs.armstrong.edu/liang/image/correct.jpg

*Section 5.5 Minimizing Numerical Errors*

***14***  Analyze the following fragment:  
  
sum = d = 0  
while d != 10.0:  
    d += 0.1  
    sum += sum + d

 A. The program does not run because sum and d are not initialized correctly.

 B. The program never stops because d is always 0.1 inside the loop.

 C. The program may not stop because of the phenomenon referred to as numerical inaccuracy for operating with floating-point numbers.

 D. After the loop, sum is 0 + 0.1 + 0.2 + 0.3 + ... + 1.9

The correct answer is C  
Your answer B is incorrect http://www.cs.armstrong.edu/liang/image/wrong.jpg

***15***  To add 0.01 + 0.02 + ... + 1.00, what order should you use to add the numbers to get better accuracy?

 A. add 0.01, 0.02, ..., 1.00 in this order to a sum variable whose initial value is 0.

 B. add 1.00, 0.99, 0.98, ..., 0.02, 0.01 in this order to a sum variable whose initial value is 0.

The correct answer is A  
Your answer is correct http://www.cs.armstrong.edu/liang/image/correct.jpg

*Section 5.6 Case Studies*

***16***  How many times is the print statement executed?  
  
for i in range(10):   
    for j in range(i):  
        print(i \* j)

 A. 100

 B. 20

 C. 10

 D. 45

The correct answer is D  
Your answer is correct http://www.cs.armstrong.edu/liang/image/correct.jpg

*Section 5.7 Keywords break and continue*

***17***  Will the following program terminate?  
  
balance = 10  
  
while True:  
    if balance < 9: break  
    balance = balance - 9

 A. Yes

 B. No

The correct answer is A  
Your answer is correct http://www.cs.armstrong.edu/liang/image/correct.jpg

***18***  What is sum after the following loop terminates?  
  
sum = 0  
item = 0  
while item < 5:  
    item += 1  
    sum += item  
    if sum > 4: break  
  
print(sum)

 A. 5

 B. 6

 C. 7

 D. 8

The correct answer is B  
Your answer is correct http://www.cs.armstrong.edu/liang/image/correct.jpg

***19***  What is sum after the following loop terminates?  
  
sum = 0  
item = 0  
while item < 5:  
    item += 1  
    sum += item  
    if sum >= 4: continue  
  
print(sum)

 A. 15

 B. 16

 C. 17

 D. 18

The correct answer is A  
Your answer is correct http://www.cs.armstrong.edu/liang/image/correct.jpg

***20***  Will the following program terminate?  
  
balance = 10  
  
while True:  
    if balance < 9: continue  
    balance = balance - 9

 A. Yes

 B. No

The correct answer is B  
Your answer A is incorrect http://www.cs.armstrong.edu/liang/image/wrong.jpg

*Section 5.8 Case Study: Displaying Prime Numbers*

***21***  What is the printout after the following loop terminates?  
  
number = 25  
isPrime = True  
i = 2   
while i < number and isPrime:  
    if number % i == 0:  
        isPrime = False  
  
    i += 1  
  
print("i is", i, "isPrime is", isPrime)

 A. i is 5 isPrime is True

 B. i is 5 isPrime is False

 C. i is 6 isPrime is True

 D. i is 6 isPrime is False

The correct answer is D  
Your answer is correct http://www.cs.armstrong.edu/liang/image/correct.jpg

***22***  What is the printout after the following loop terminates?  
  
number = 25  
isPrime = True  
for i in range(2, number):  
    if number % i == 0:  
        isPrime = False  
        break  
  
print("i is", i, "isPrime is", isPrime)

 A. i is 5 isPrime is True

 B. i is 5 isPrime is False

 C. i is 6 isPrime is True

 D. i is 6 isPrime is False

The correct answer is B  
Your answer is correct http://www.cs.armstrong.edu/liang/image/correct.jpg

***23***  What is the number of iterations in the following loop:  
  
  for i in range(1, n):  
      # iteration

 A. 2\*n

 B. n

 C. n - 1

 D. n + 1

The correct answer is C  
Your answer is correct http://www.cs.armstrong.edu/liang/image/correct.jpg

***24***  What is the number of iterations in the following loop:  
  
  for i in range(1, n + 1):  
      # iteration

 A. 2\*n

 B. n

 C. n - 1

 D. n + 1

The correct answer is B  
Your answer D is incorrect http://www.cs.armstrong.edu/liang/image/wrong.jpg

***25***  Suppose the input for number is 9. What is the output from running the following program?  
  
number = eval(input("Enter an integer: "))  
  
isPrime = True  
for i in range(2, number):  
    if number % i == 0:  
        isPrime = False  
  
    print("i is", i)  
  
    if isPrime:  
        print(number, "is prime")  
        break  
    else:  
        print(number, "is not prime")

 A. i is 3 followed by 9 is prime

 B. i is 3 followed by 9 is not prime

 C. i is 2 followed by 9 is prime

 D. i is 2 followed by 9 is not prime

The correct answer is C  
Your answer is correct http://www.cs.armstrong.edu/liang/image/correct.jpg