

# Week 07: Problem Set

Due: 2023-03-03 23:59:00

Description:

Self Grade: 0 of 20 = 0.0%

You have marked this assignment Finished. Click to mark it

In Progress

## Questions

Not yet  
graded

Q-1: What is the result of executing the following code?

```
number = 5
while number <= 5:
    if number < 5:
        number = number + 1
    print(number)
```

- ☒ A. The program will loop indefinitely
- ☐ B. The value of number will be printed exactly 1 time
- ☐ C. The while loop will never get executed
- ☐ D. The value of number will be printed exactly 5 times

Check Me

Compare me

✓ Correct! This code loops while number is less than or equal to 5. number only increments if it is less than 5, and it's originally set to 5, so 'number' never changes.

Activity: 6.9.1 Multiple Choice (e5mc1)

Question in Context (/ns/books/published/cmssc-210-spring-2023/iterations/Exercises.html#e5mc1)

Not yet  
graded

Q-2: What will the following code print?

```
counter = 1
sum = 0
while counter <= 6:
    sum = sum + counter
    counter = counter + 2
print(sum)
```

- ☐ A. 12
- ☒ B. 9
- ☐ C. 7
- ☐ D. 8

Check Me

Compare me

✓ Correct! This loop executes 3 times. After the first loop sum = 1 and counter = 3, after the second loop sum = 4 and counter = 5, and after the third loop sum = 9 and counter = 7.

Activity: 6.9.2 Multiple Choice (e5mc2)

Question in Context (/ns/books/published/cmssc-210-spring-2023/iterations/Exercises.html#e5mc2)

Not yet graded

Q-3: What will be printed by the following code when it executes?

```
sum = 0
values = [1,3,5,7]
for number in values:
    sum = sum + number
print(sum)
```

- ☐ A. 4
- ☐ B. 0
- ☐ C. 7
- ☒ D. 16

Check Me

Compare me

✓ Correct! This adds up the numbers in values and prints the sum.

Activity: 6.9.3 Multiple Choice (e5mc3)

Question in Context (/ns/books/published/cmssc-210-spring-2023/iterations/Exercises.html#e5mc3)

Not yet graded

Q-4: What is the last thing printed when the following code is run?

```
number = 0
while number <= 10:
    print("Number: ", number)
    number = number + 1
```

- ☒ A. Number: 10
- ☐ B. Number: number
- ☐ C. Number: 0
- ☐ D. Number: 11

Check Me

Compare me

✓ Correct! Since this while loop continues while number is less than or equal to 10, the last iteration of the loop will print "Number: 10".

Activity: 6.9.4 Multiple Choice (e5mc4)

Question in Context (/ns/books/published/cmssc-210-spring-2023/iterations/Exercises.html#e5mc4)

Not yet graded

Q-5: What does the following code print?

```
output = ""
x = -5
while x < 0:
    x = x + 1
    output = output + str(x) + " "
print(output)
```

- ☐ A. 5 4 3 2 1
- ☐ B. -4 -3 -2 -1 0
- ☐ C. -5 -4 -3 -2 -1
- ☐ D. This is an infinite loop, so nothing will be printed

Check Me

Compare me

Activity: 6.9.5 Multiple Choice (e5mc5)

[Question in Context \(/ns/books/published/cmssc-210-spring-2023/iterations/Exercises.html#e5mc5\)](/ns/books/published/cmssc-210-spring-2023/iterations/Exercises.html#e5mc5)

Not yet graded

Q-6: What are the values of var1 and var2 that are printed when the following code executes?

```
output = ""
var1 = -2
var2 = 0
while var1 != 0:
    var1 = var1 + 1
    var2 = var2 - 1
print("var1: " + str(var1) + " var2 " + str(var2))
```

- ☐ A. var1 = -2, var2 = 0
- ☒ B. var1 = 0, var2 = -2
- ☐ C. var1 = 0, var2 = -1
- ☐ D. This is an infinite loop, so nothing will be printed

Check Me

Compare me

✓ Correct! This loop will execute two times, so var1 will be 0 and var2 will be -2 when the loop is exited.

Activity: 6.9.6 Multiple Choice (e5mc6)

[Question in Context \(/ns/books/published/cmssc-210-spring-2023/iterations/Exercises.html#e5mc6\)](/ns/books/published/cmssc-210-spring-2023/iterations/Exercises.html#e5mc6)

Not yet graded

Q-7: How many asterisks will be printed when the following code executes?

```
for x in [0, 1, 2, 3]:
    for y in [0, 1, 2, 3, 4]:
        print('*')
```

- ☐ A. 0
- ☐ B. 4
- ☐ C. 5
- ☒ D. 20
- ☐ E. This is an infinite loop, so nothing will be printed

Check Me

Compare me

✓ Correct! The outer loop will iterate 4 times and the inner loop will iterate 5 times. 4 times 5 = 20.

Activity: 6.9.7 Multiple Choice (e5mc7)

Question in Context (/ns/books/published/cmssc-210-spring-2023/iterations/Exercises.html#e5mc7)

Not yet  
graded

Q-8: The following code contains an infinite loop. Which is the best explanation for why the loop does not terminate?

```
n = 10
answer = 1
while n > 0:
    answer = answer + n
    n = n + 1
print(answer)
```

- ☒ A. n starts at 10 and is incremented by 1 each time through the loop, so it will always be positive.
- ☐ B. answer starts at 1 and is incremented by n each time, so it will always be positive.
- ☐ C. You cannot compare n to 0 in the while loop. You must compare it to another variable.
- ☐ D. In the while loop body, we must set n to False, and this code does not do that.

Check Me

Compare me

✓ Correct! The loop will run as long as n is positive. In this case, we can see that n will never become non-positive, so it will run infinitely.

Activity: 6.9.8 Multiple Choice (e5mc8)

Question in Context (/ns/books/published/cmssc-210-spring-2023/iterations/Exercises.html#e5mc8)

Not yet  
graded

Q-9: Which type of loop can be used to perform the following iteration: You choose a positive integer at random and then print the numbers from 1 up to and including the selected integer.

- ☒ A. a for-loop or a while-loop
- ☐ B. only a for-loop
- ☐ C. only a while-loop

Check Me

Compare me

✓ Correct! Although you do not know how many iterations you loop will run before the program starts running, once you have chosen your random integer, Python knows exactly how many iterations the loop will run, so either a for-loop or a while-loop will work.

Activity: 6.9.9 Multiple Choice (e5mc9)

Question in Context (/ns/books/published/cmssc-210-spring-2023/iterations/Exercises.html#e5mc9)

Not yet  
graded

Q-10: Which of the following statements won't be printed when this Python code is run?

```
for letter in 'Python':
    if letter == 'h':
        continue
    print('Current Letter : ' + letter)
```

- ☐ A. Current Letter : P
- ☐ B. Current Letter : t
- ☒ C. Current Letter : h
- ☐ D. Current Letter : o

Check Me

Compare me

✓ Correct! Because continue sends the loop to the next iteration at h, it will not print "Current Letter: h".

Activity: 6.9.10 Multiple Choice (e5mc10)

Question in Context (/ns/books/published/cmssc-210-spring-2023/iterations/Exercises.html#e5mc10)

Not yet graded

Q-11: What will the following code print?

```
def mystery(str):
    out = ""
    for char in str:
        if char == "i":
            break
        if char == 'a':
            continue
        out += char
    return out

print(mystery("walking"))
```

- ☐ A. walking
- ☐ B. wlking
- ☒ C. wlk
- ☐ D. wlknng

Check Me

Compare me

✓ It will not add the 'a' and will stop when it reaches the 'i'

Activity: 6.9.11 Multiple Choice (e5mc11)

Question in Context (/ns/books/published/cmssc-210-spring-2023/iterations/Exercises.html#e5mc11)

Not yet graded

Q-12: Which of the following will add up the numbers from 1 to 4?

```
1.
for i in range(1,4):
    sum = 0
    sum = sum + i
```

2.

```
sum = 0
for i in range(1,4):
    sum = sum + i
```

3.

```
for i in range(1,5):
    sum = 0
    sum = sum + i
```

4.

```
sum = 0
for i in range(1,5):
    sum = sum + sum
```

5.

```
sum = 0
for i in range(1,5):
    sum = sum + i
```

- ☐ A. 1.
- ☐ B. 2.
- ☐ C. 3.
- ☐ D. 4.
- ☒ E. 5.

Check Me

Compare me

✓ This will loop from 1 to 4 and calculate the sum of those values.

Activity: 6.9.12 Multiple Choice (e5mc12)

Question in Context (/ns/books/published/cmsc-210-spring-2023/iterations/Exercises.html#e5mc12)

Not yet graded

Q-13: What will the following code print?

```
def mystery(nums):
    out = []
    for num in nums:
        if num < 0:
            continue
        else:
            out.append(num)
    return out

print(mystery([3, -3, -2, 1]))
```

- ☒ A. [3, 1]
- ☐ B. [3, -2, 1]
- ☐ C. [3]
- ☐ D. [3, -3, -2, 1]

Check Me

Compare me

✓ This adds any non negative values to the out list.

Activity: 6.9.13 Multiple Choice (e5mc13)

Question in Context (/ns/books/published/cmsc-210-spring-2023/iterations/Exercises.html#e5mc13)

Not yet  
graded

Q-14: Which of the following will print five rows with five '\*' in each row?

1.

```
for i in range(0,5):  
    print("*" * i)
```

2.

```
for i in range(0,5):  
    print("*" * 5)
```

3.

```
for i range(1,5):  
    print("*" * i)
```

4.

```
for i in range(1,5):  
    print("*" * 5)
```

- ☐ A. 1.
- ☒ B. 2.
- ☐ C. 3.
- ☐ D. 4.

Check Me

Compare me

✓ This will loop 5 times (0 to 4) and print five "\*" on each row.

Activity: 6.9.14 Multiple Choice (e5mc14)

Question in Context (/ns/books/published/cmsc-210-spring-2023/iterations/Exercises.html#e5mc14)

Not yet  
graded

Q-15: What will the following code print?

```
for i in range(1,4):  
    for j in range(1,4):  
        print(i, j, end=' ')
```

- ☐ A. 1 1 2 2 3 3
- ☐ B. 1 2 3 1 2 3 1 2 3
- ☒ C. 1 1 1 2 1 3 2 1 2 2 2 3 3 1 3 2 3 3
- ☐ D. 1 1 2 1 3 1 2 1 2 2 2 3 3 1 3 2 3 3

Check Me

Compare me

✓ It prints both i and j each time through the loop. The value of i starts at 1 and j changes from 1 to 3 before i changes.

Activity: 6.9.15 Multiple Choice (e5mc15)

Question in Context (/ns/books/published/cmssc-210-spring-2023/iterations/Exercises.html#e5mc15)

Not yet graded

Make 5 changes to the code below to correctly print a count up from -10 to 0, including 0.

Save & Run

2/23/2023, 10:02:36 PM - 2 of 2

Show in CodeLens

```
1 output = ""
2 # Start x at -11 so it stays under 0
3 x = -11
4
5 # First line of a loop ends with a colon (:)
6 while x < 0:
7
8     # Since the iteration variable is negative, increase the count
9     x = x + 1
10
11     # Output reassignment is within the loop
12     output = output + str(x) + " "
13
14 # Close print parentheses
15 print(output)
16
17
18
```

-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0

Result	Actual Value	Expected Value	Notes
Pass	'-10 -...-1 0 '	'-10 -...-1 0 '	

Expand Differences

You passed: 100.0% of the tests

Activity: 6.11.4 ActiveCode (itr-ex-countq)

Question in Context (/ns/books/published/cmssc-210-spring-2023/iterations/WriteCode.html#itr-ex-countq)

Not yet graded

Finish lines 1 and 5 so that the following code correctly prints every integer from -5 to -1, including -1.

Save & Run

1/1/2024, 10:35:04 PM - 2 of 2

Show in CodeLens

```
1 output = "" # Line 1: Initialize an empty string to store the output
2
3 x = -5
4 while x < 0:
5     output = output + str(x) + " " # Line 5: Append the current value of x to the output
6     x += 1 # Increment x by 1 in each iteration of the loop
7
8 print(output)
9
```



10

-5 -4 -3 -2 -1

Result	Actual Value	Expected Value	Notes
Pass	'-5 -4 -3 -2 -1 '	'-5 -4 -3 -2 -1 '	

You passed: 100.0% of the tests

Activity: 6.11.6 ActiveCode (itr-ex-allValuesq)

Question in Context (/ns/books/published/cmssc-210-spring-2023/iterations/WriteCode.html#itr-ex-allValuesq)

Not yet graded

Complete the code on lines 4 and 6 so that it prints the number 6.

Save & Run

Show in CodeLens

2/23/2023, 10:04:18 PM - 2 of 2

```
1 x = 3
2 i = 0
3 while i < 3:
4     # Increase x by 1 for each run of the loop
5     x = x + 1
6     i = i + 1
7 # Print the x variable
8 print(x)
9
10
```

6

Result	Actual Value	Expected Value	Notes
Pass	6	6	

You passed: 100.0% of the tests

Activity: 6.11.7 ActiveCode (itr-ex-sixq)

Question in Context (/ns/books/published/cmssc-210-spring-2023/iterations/WriteCode.html#itr-ex-sixq)

Not yet graded

This function currently takes a start and stop argument and uses a for loop to find the sum of all the numbers between them (inclusive). Change the for loop to a while loop while still using the same parameters.

Save & Run

Show in CodeLens

2/23/2023, 10:06:00 PM - 2 of 2

```
1 def sumFunc(start, stop):
2     sum = 0
3     # Create an iteration variable, initialized to the start argument
4     num = start
5     # Use while loop until iteration variable is less than
6     # or equal to stop argument
7     while num <= stop:
8         # Add number to sum
```

```
9      sum = sum + num
10     # Increase iteration variable
11     num += 1
12     # Return the sum
13     return sum
14
15 print(sumFunc(1,10))
16
17
18
```

55

Result	Actual Value	Expected Value	Notes
Pass	55	55	Tested sumFunc on inputs 1 and 10
Pass	0	0	Tested sumFunc on inputs 10 and 3
Pass	-15	-15	Tested sumFunc on inputs 20 and 50
Pass	72	72	Tested sumFunc on inputs -3 and 12

You passed: 100.0% of the tests

Activity: 6.11.9 ActiveCode (int-ex-inclusiveq)

Question in Context (/ns/books/published/cmssc-210-spring-2023/iterations/WriteCode.html#int-ex-inclusiveq)

Not yet  
graded

Rewrite the following code to use a while loop instead of a for loop.

Save & Run

Original - 1 of 1

Show in CodeLens

```
1 product = 1 # Start out with nothing
2 numbers = range(1,11)
3 for number in numbers:
4     product = product * number
5 print(product)
6
7
```

3628800

Result	Actual Value	Expected Value	Notes
Pass	3628800	3628800	

You passed: 100.0% of the tests

Activity: 6.11.15 ActiveCode (int-ex-whileq)

Question in Context (/ns/books/published/cmssc-210-spring-2023/iterations/WriteCode.html#int-ex-whileq)

You have marked this assignment Finished. Click to mark it

In Progress

This assignment is graded and is no longer accepting submissions. You can still do the work, but it is up to your instructor whether they will accept it or not.