# Chapter Review Questions

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Chapter 4 Review Questions (10 points):

1. Describe the four basic elements of counter-controlled iteration.

**The four basic elements of counter-controlled iteration are: the control variable, the initial value of the counter, the increment/decrement of our control variable, and the looping condition that determines whether we’ll iterate again.**

1. Compare and contrast the while and for iteration statements.

**The while loop is an indefinite loop that is sentinel-controlled. The for loop is a definite loop that is counter-controlled. Both statements are looping structures. The while loop can also be used as a for loop, but the for loop can’t be used as a while loop. If the number of iterations are known, a for loop is used. However, if the number of iterations isn’t known, a while loop is used.**

1. Discuss a situation in which it would be more appropriate to use a do…while statement than a while statement. Explain why this is important to know.

**An example of where we could use a do-while instead of a while statement is when asking the user for input. We need to prompt the user at least once for input. If the input is entered incorrectly, then we can prompt the user again. We wouldn’t use a while loop because we need to get our input first before testing to see if it’s correct or not. If we had used a while loop, we’d be trying to check whether our input is correct without having received input from the user.**

1. Compare and contrast the break and continue statements.

**The break statement is used to break off from an iterative structure. On the other hand, the continue statement is used to continue** **the loop’s iterations. When the break statement is used, we immediately exit the code block. When a continue statement is used, all remaining statements within our code block are skipped and we jump to the next iteration.**

1. Fill in the blank:

The do…while statement tests the loop-continuation condition \_\_\_\_\_\_\_\_ executing the loop’s body; therefore, the body always executes at least once.

**After.**

1. Fill in the blank:

The for-loop statement tests the loop-continuation condition \_\_\_\_\_\_\_\_ executing the loop’s body; therefore.

**Before.**

1. What statement, when executed in an iteration statement, skips the remaining statements in the loop body and proceeds with the next iteration of the loop?

**The continue statement.**

1. Write a Java statement or a set of Java statements to accomplish the following task:

Compute the sum the even integers between 100 and 999, using a for statement. Assume that the integer variables sum and count have been declared.

**sum=0;**

**for(count = 100; count < 999; count += 2){**

**sum+=count;**

**}**

1. Write a Java statement or a set of Java statements to accomplish the following task:

Compute the sum the integers that are multiples of 4 and 7, between 100 and 999, using a for statement. Assume that the integer variables sum and count have been declared.

**sum=0;**

**for(count = 100; count < 999; count++){**

**if(count % 4 == 0 && count % 7 == 0){ //Finding multiples of 4 and 7.**

**sum+=count;**

**}**

**}**

1. Write a Java statement or a set of Java statements to accomplish the following task:

Display the values: 1, 4, 7, 10, 13, 16, … out to 25 terms, using a for statement (hint: the equation for these values are: y = 3x + 1, with x starting at zero).

**for(int x = 0; x < 25; x++){**

**System.out.print(3\*x+1);**

**System.out.print(“, “);**

**}**