

1. What is the purpose of a loop structure?

To repeat a set of instructions multiple times without rewriting the code

2. Explain the difference between a while statement and a do-while statement.

With while statement, it is used when you need to check a condition before any execution. And with a do-while statement, it is used when you need the code run at least once.

3. An input validation loop is a loop that checks user input for valid data. If valid data is not entered, the loop iterates until valid is entered. In which review of this chapter did you write code for an input validation.

Password (CH5, E17)

4. A) what is an infinite loop?

Where the instructions in the code never end and just repeats, because there no exit condition

B) List two types of error that can lead to an infinite loop.

-logical errors

-missing or incorrect exit conditions.

C) What is meant by overflow?

An error that happens when calculation results that are too large or too small to be stored.

5. How many times will the do-while loop execute?

```
int x = 0;
```

```
do {
```

```
    x = x + 2;
```

```
} while (x < 120)
```

59 times

6. What initial value of x would make the loop infinite?

```
do {
```

```
    x = x - 3;
```

```
} while (x < 120)
```

Any numbers less than 120

7. Compare and contrast counters and accumulators. List two uses for each.

Counters:

- Counting the number of items in a list
- Controlling the number of repetitions in a loop

Accumulators:

- Calculating the sum of a group of numbers
- Adding up scores

8. Write a for statement that sums the integers from 3 to 10, inclusive

```
int totalSum = 0; for (int i = 3; i <= 10; i++)
```

```
{ totalSum += i; }
```

```
System.out.println(totalSum);
```

9. List two factors that should be considered when determining which loop structure to choose.

- What is the prospect of your code
- What would work the best

11. Consider the following assignment:

```
String x = "my string.";
```

Determine the value returned by each of the following methods:

A) `x.length()`

10

B) `x.substring(0, 3)`

my