1. What gets printed? Please show output as it will appear or indicate “NO OUTPUT”. If it’s an infinite loop, be sure to show at least 3 of the output followed by “INFINITE LOOP.”

```java
int a = 10;
while (a <= 15)
{
    a++;
    System.out.println(a);
}
```

Output:
```
11
12
13
14
15
16
```

```java
int a = 0;
while (a < 5)
{
    System.out.println(a);
    a--;
}
```

Output:
```
0
-1
-2
-3
... INFINITE LOOP
```

```java
int a = 8;
while (a < 8)
{
    System.out.println(2*a);
    a++;
}
```

NO Output

```java
int a = 1;
while (a < 14)
{
    System.out.println (2*a);
    a = a + 5;
}
```

Output:
```
2
12
22
```
2. Let’s look at the problem of repeatedly obtaining input and performing a calculation, for example, converting a temperature from Celsius to Fahrenheit, using the following algorithm:

```
Variables:
c, f
Algorithm:
input c
f = c * (9/5) + 32
print f
```

Rewrite this algorithm, modifying it so that it uses a while structure to repeat the processing of each input in two different ways, as specified below.

a) Keep converting temperatures and ask each time whether to keep going.

Variables:
- c, f, answer

Algorithm:

```
answer = 1

while (answer == 1)
    input c
    f = c * (9/5) + 32
    print f
    print “continue? 1=yes, 0=no”
    input answer
```

b) Convert 50 temperatures (exact count).

Variables:
- c, f, count

Algorithm:

```
count = 1

while (count <= 50)
    input c
    f = c * (9/5) + 32
    print f
    count = count + 1
```
1. What gets printed? Please show output as it will appear or indicate "NO OUTPUT". If it's an infinite loop, be sure to show at least 3 of the output followed by "INFINITE LOOP."

```java
int a = 4;
while (a > 0)
{
    System.out.println(a);
    a++;
}
```

Output:

```
4
5
6
7
... INFINITE LOOP
```

```java
int a = 3;
while (a > 0)
{
    System.out.println(a);
    a = a - 2;
}
```

Output:

```
3
1
```

```java
int a = 2;
while (a < 5)
{
    a++;
    System.out.println(a);
}
```

Output:

```
3
4
5
```

```java
int a = 1;
while (a <= 4)
{
    System.out.println (3*a + 1);
    a++;
}
```

Output:

```
4
7
10
13
```
2. Let’s look at the problem of repeatedly obtaining input and performing a calculation, for example, converting a temperature from Celsius to Fahrenheit, using the following algorithm:

Rewrite this algorithm, modifying it so that it uses a while structure to repeat the processing of each input in two different ways, as specified below.

### Variables: c, f

### Algorithm:

```plaintext
input c
f = c*(9/5)+32
print f
```

a) Keep converting temperatures until user quits program (infinite loop).

#### Variables:

- c, f

#### Algorithm:

```plaintext
while (true)
    input c
    f = c*(9/5) + 32
    print f
```

b) Keep converting temperatures until user inputs -999 (sentinel value)

#### Variables:

- c, f

#### Algorithm:

```plaintext
input c
while (c != -999)
    f = c*(9/5) + 32
    print f
    input c
```