Quiz 3

1. What gets printed? Please show output as it will appear or indicate “NO OUTPUT” or show some of the output followed by “INFINITE LOOP.”

```java
int a = 4;
while (a > 0) {
    a = a - 2;
    System.out.println(a);
}
```

Output:

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

Output:

```java
int a = 1;
while (a <= 4) {
    if ((a%2)==0)
        System.out.println(a);
    a++;
}
```

Output:

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

Output:
Quiz 3

Name: ______________________________

1. What gets printed? Please show output as it will appear or indicate “NO OUTPUT” or show some of the output followed by “INFINITE LOOP.”

```
int a = 4;
while (a != 0)
{
    System.out.println(a);
    a = a - 2;
}
```

Output:

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

Output:

```
int a = 1;
while (a <= 4)
{
    a++;
    if ((a%2)==0)
        System.out.println(a);
}
```

Output:

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

Output:
Quiz 3

1. What gets printed? Please show output as it will appear or indicate “NO OUTPUT” or show some of the output followed by “INFINITE LOOP.”

```java
int a = 7;
while (a > 0)
{
    a = a - 2;
    System.out.println(a);
}
```

Output:

```java
int a = 7;
while (a > 0)
{
    System.out.println(a);
    a++;
}
```

Output:

```java
int a = 1;
while (a <= 7)
{
    if ((a%2)==0)
        System.out.println(a);
    a++;
}
```

Output:

```java
int a = 7;
while (a < 7)
{
    System.out.println (a);
    a++;
}
```

Output:
1. What gets printed? Please show output as it will appear or indicate “NO OUTPUT” or show some of the output followed by “INFINITE LOOP.”

```
int a = 7;
while (a != 0)
{
    System.out.println(a);
    a = a - 2;
}
```

Output:

```
int a = 7;
while (a < 7)
{
    System.out.println(a);
    a++;
}
```

Output:

```
int a = 1;
while (a <= 7)
{
    a++;
    if ((a%2)==0)
        System.out.println(a);
}
```

Output:

```
int a = 1;
while (a < 7)
{
    a++;
    System.out.println (a);
}
```

Output:
2. Let's look at the problem of repeatedly obtaining input and performing a calculation, for example, calculating a student's GPA from credits and quality points, using the following algorithm:

Rewrite this algorithm, modifying it so that it uses a while structure to repeat the processing in two different ways.

Variables:
credits, qp, gpa

Algorithm:
input credits
input qp
qpa = qp/credits
print gpa

a) Keep calculating GPAs until user quits program (infinite loop).
Variables:

Algorithm:

b) Calculate GPA for 50 students (exact count).
Variables:

Algorithm:
2. Let's look at the problem of repeatedly obtaining input and performing a calculation, for example, calculating a student's GPA from credits and quality points, using the following algorithm:

Variables:
credits, qp gpa

Algorithm:
input credits
input qp
\[ gpa = \frac{qp}{credits} \]
print gpa

Rewrite this algorithm, modifying it so that it uses a while structure to repeat the processing in two different ways.

a) Keep calculating GPAs and ask each time whether to keep going.
Variables:

Algorithm:

b) Keep calculating GPA until user inputs zero for the credits (sentinel value)
Variables:

Algorithm:
2. Insert appropriate Java code in the space below to perform input validation (i.e., ensure that the user inputs a number greater than zero, allowing them to keep trying again if they entered a value less than zero).

```java
import java.text.NumberFormat;
import java.util.Scanner;
public class Wages {

    public static void main(String[] args) {
        final double RATE = 8.25;  // regular pay rate
        final int STANDARD = 40;   // standard hours in a work week
        Scanner scan = new Scanner(System.in);
        double pay = 0.0;
        System.out.print("Enter the number of hours worked: ");
        int hours = scan.nextInt();

        System.out.println();
        // Pay overtime at "time and a half"
        if (hours > STANDARD)
            pay = STANDARD * RATE + (hours-STANDARD) * (RATE * 1.5);
        else
            pay = hours * RATE;
        NumberFormat fmt = NumberFormat.getCurrencyInstance();
        System.out.println("Gross earnings: "+fmt.format(pay));
    }
}
```