1. (10 points) We want the loops below to print out the numbers between 0 and 20 (inclusive) counting by 2s (i.e., 0, 2, 4, 6, ..., 20)? Fill in the blanks in the following loops to achieve this goal.

(a) int i = 0;
    while (i < ______) {
        System.out.println(i);
        i += 2;
    }

   Solution: 21

(b) int i = 0;
    while (i <= ______) {
        System.out.println(i);
        i += 2;
    }

   Solution: 20 or 21 will work here

(c) int i = 0;
    while (i < 21) {
        if(______________________) {
            System.out.println(i);
        }
        i++;
    }

   Solution: i % 2 == 0

(d) for (int i = 0;____________________; i+=2) {
    System.out.println(i);
}

   Solution: i <= 20 or i < 21 or i <= 21

(e) for (int i = 20; i >= 0; i=i-2) {
    System.out.println(____________________);
}

   Solution: 20-i
2. (2 points) In your own words explain the logical error of an *infinite loop* and give an example of code that demonstrates this error

```
Solution: An infinite loop is a loop which never ends. A (very simple example) is:

```java
int n = 0;
while (n < 20) {
    System.out.println(n);
}
```

3. (3 points) Give the output (ie what will be displayed in the terminal) of the code below:

```java
int n = 0;
while (n < 6) {
    if (n < 2 || n > 3) {
        System.out.println("** **"); //there are 2 spaces in the middle!
    } else {
        System.out.println("*****");
    }
    n++;
}
```

**Solution:** The letter H:

```
** **
** **
*****
*****
** **
** **
```