Assignment 2.2 - Big O Code Analysis   Name____________________

Determine the Big O worst case run time for each of the following. Add "comments" showing your work. The first one is done for you.

1.

```
// repeats (n-1) times
 for (i = 1; i < n; i++)
     System.out.println(n); // constant

 // repeats 1/2 n times
 for (i = 1; i <= n; i+=2)
     System.out.println(n); // constant
```

Running time = $c*(n-1) + c*((1/2)n)$ = c*((3/2)n-1) = O(n)

2.

```
 int n = 1000;
 System.out.prtinln(n);
```

Running time =

3.

```
for (int i = n; i > 0; i = i / 2)
     System.out.println(i);
```

Running time =

4.

```
double i = 0;
 while ( i < n) {
     i+=0.5;
     System.out.println(i);
 }
```

Running time =

5.

```
for (int i = 1; i <= n; i++) {
     for (int j = 1; j < n; j = j * 2) {
         System.out.println(i * j);
     }
 }
```

Running time =

6.

```
for(int i = 0; i < n; i++) {
     for (int j = 0; j < n; j++) {
         for (int k = 0; k < n; k++) {
             System.out.println(i+j+k);
         }
     }
 }
```

Running time =

7.

```
for(int i = 0; i < n; i++) {
     for (int j = 0; j < n; j++) {
         for (int k = 0; k < 10; k++) {
             System.out.println(i+j+k);
         }
     }
 }
```

Running time =

8.

```
for(int i = 0; i < Math.pow(2,n), i++)
     System.out.println(i);
```

Running time =