CSSE 220 – Object-Oriented Software Development
Rose-Hulman Institute of Technology

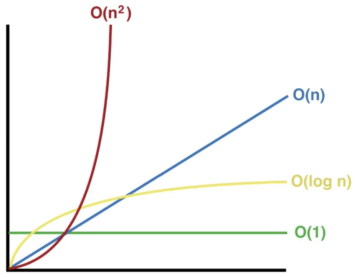
Worksheet 18

Name (Print):_____ Section:_____

1. The efficiency of an algorithm depends on _____ parameter and _____ parameter.

2. Select the correct statement for time complexity:

   1) the number of times a particular instruction set is executed
   2) the total time taken to execute the program

3. 

   1) x-axis: _____ 2) y-axis: _____

4. Provide the order of 4 common time complexity families (algorithms) as data size increases:

   _____

5. Select the correct BigO:

$3n^2$:	O(1)	O(n)	$O(n^2)$
1,000,000:	O(1)	O(n)	$O(n^2)$
$2n^2 + n + 3$:	O(1)	O(n)	$O(n^2)$
$n/2 + n$:	O(1)	O(n)	$O(n^2)$

6. How many operations involved and what is BigO

```
static int addNum(int n1,int n2){
    int sum = n1 + n2;
    return sum;
  }
//Num of Operations: _________________________
//BigO: _________________________
```

7. How many operations involved and what is BigO

```
 public int sum(int[] a) {
    int s = 0;
    for (int x : a) {
        s += x;
    }
    return s;
}
//Num of Operations: _________________________
//BigO: _________________________
```

8. How many operations involved and what is BigO

```
public void twoPass(int[] a) {
    int sum = 0;
    for (int x : a) {
        sum += x;
    }
    for (int x : a) {
        System.out.println(x);
    }
}
//Num of Operations: _________________________
//BigO: _________________________
```

9. How many operations involved and what is BigO

```
public void printAllPairs(int[] a) {
    for (int x : a) {
        for (int y : a) {
            System.out.println("(" + x + "," + y + ")");
        }
    }
}
//Num of Operations: _________________________
//BigO: _________________________
```

10. Complete with BigO examples:

BigO	Example
O(1)	
O(n)	
$O(n^2)$	
O(log n)	
O(n log n)	