Name: _____

Recursion Homework

What are the two things we need to have to make a recursive algorithm?

Given this method definition

```
public static int add(int n) {
    if (n == 0)
        return 1;
    else
        return add(n-1) + n;
}
```

what is the value of z after each of the following method calls?

a. z = add(1);

b. z = add(0);

c. z = add(10);

How many times will the method be called with the following statement?

z = add(100);

Given this method definition

```
public static double what(int one, double two) {
  if (one == 0){
       return two;
   } else {
       return 1 + what(one - 1, two * 5.0)
   }
}
```

what is the value of x after each of the following method calls?

a. x = what(1, 2.0);

b. x = what(2, 2.0);

c. x = what(-1, 3.0);

Consider the following static method:

```
public static void recur(int n) {
   if(n != 0) {
      recur(n - 2);
      System.out.print(n + " ");
   }
}
```

What numbers will be printed as a result of the call recur(7)?

(A) -1 1 3 5 7
(B) 1 3 5 7
(C) 7 5 3 1
(D) Many numbers will be printed because of infinite recursion.
(E) No numbers will be printed because of infinite recursion.