Recursive GCF

Euclid's GCF Algorithm

e.g. a=30, b=42

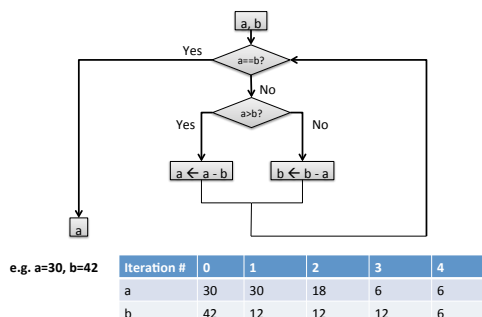| Iteration #	0	1	2	3	4
a	30	30	18	6	6
b	42	12	12	12	6

Iterative Implementation

```
//Returns GCF of a and b (iterative)
//Precondition: a > 0, b > 0
public static int gcfIterative (int a, int b)
{
    while (a != b) {
        if (a > b)
            a -= b;
        else
            b -= a;
    }
    return a;
}
```

Recursive Implementation

```
//Returns GCF of a and b (recursive)
//Precondition: a > 0, b > 0
public static int gcfRecursive (int a, int b)
{

    //you will write this in today's lab



}
```

Hint: do not reassign variables

- Iterative implementation works by updating the two variables a and b
- Recursive implementation should call the same function with new a and b parameters (recursive call)