Calculate gcd

```
gcd(a,b){
    while(b!=0){
        temp = b;
        b = a%b
        a = temp
    }
    return a
}
```

loop

$O(\log \min(a,b))$

a = 24 → 1, 2, 3, 4, 6, 8, 12, 24

b = 36 → 1, 2, 3, 4, 6, 9, 12, 18, 36

Ans

temp = 36

a = 24 a%b = 36)24(0, 0, 24

b = 36

∴ b = 24

a = 36

temp = 36

a%b = 24)36(1, 24, 12

∴ b = 12

a = 36

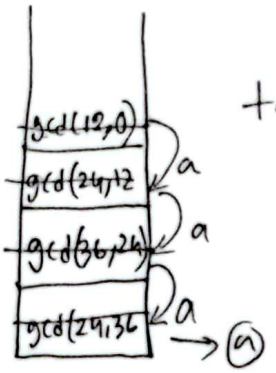
temp = 12

a%b → 12)36(3, 36, 0

b = 0, a = 12 → loop stop

return a = 12 (Ans)

```
gcd(a,b){
    if(b==0){
        return a;
    }
    return (b, a%b)
}
```



gcd of multiple integers (array):

```
static int gcdofArray(int[] array){
    int result = arr[0];
    for(int i=1; i<arr.length; i++){
        result = ~~result~~ gcd(result, arr[i]);
    }
    return result;
}
```