GCD (Greatest common Divisor)

GCD(a,b)==X if   a % X == 0
                  b % X == 0

(12, 10)

X	12	10
1	1	1
2	2	2
3	3	X
4	4	X
5	X	5

GCD = 2

(20, 10)

X	20	10
1	1	1
2	2	2
5	5	5
10	10	10

GCD = 10

Find gcd (24, 34)

```
        1
   24 | 34
        24
        ――    2
      10 | 24
          20
          ――   2
         4 | 10
             8
             ――  2
            2 | 4
                4
                ――
                0 | 2
```

Euclidian Algorithm

$gcd(a,b) = gcd(b \% a, a)$

We have $gcd(0,b) = b$

continue this until you get any of
the above zero;

```
def gcd (a,b):
    if a==0:
        return b
    temp = gcd (b%a, a)
    return temp
```

find gcd (15, 10)

stack calls

gcd {	a=0, b=5	Line 1	is a==0?
gcd {	a=5 b=15	5 Line 4	yes, return b
gcd {	a=15 b=10	5 Line 4	

ans = 5

a=15   temp = gcd (10%15, 15)
b=10   ⇓
              (5, 15)

a=5   temp = gcd (15%5, 5)
b=15   ⇓
              (0, 5)