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Exercise: gcd recur

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5.0/5.0 points (graded)

**ESTIMATED TIME TO COMPLETE: 6 minutes** 

The greatest common divisor of two positive integers is the largest integer that divides each of them without remainder. For example,

- gcd(2, 12) = 2
- gcd(6, 12) = 6
- gcd(9, 12) = 3
- gcd(17, 12) = 1

A clever mathematical trick (due to Euclid) makes it easy to find greatest common divisors. Suppose that a and b are two positive integers:

- If b = 0, then the answer is a
- Otherwise, gcd(a, b) is the same as gcd(b, a % b)

See this website for an example of Euclid's algorithm being used to find the gcd.

Write a function <code>gcdRecur(a, b)</code> that implements this idea recursively. This function takes in two positive integers and returns one integer.

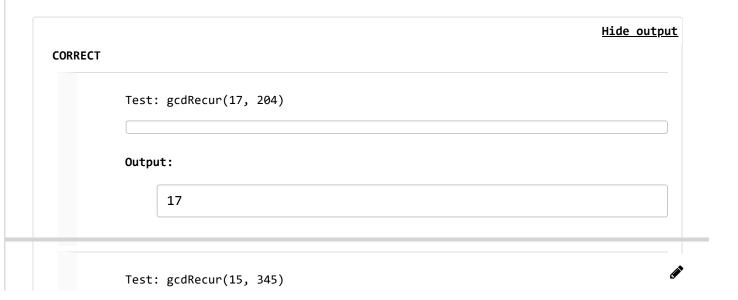
```
1 def gcdRecur(a, b):
 2
 3
      a, b: positive integers
 4
 5
       returns: a positive integer, the greatest common divisor of a & b.
 6
 7
      # Your code here
 8
      if b == 0:
 9
           return a
10
      elif a == 0:
11
           return b
12
      else:
13
           return gcdRecur(b, a%b)
```

Press ESC then TAB or click outside of the code editor to exit

## Correta

```
def gcdRecur(a, b):
    a, b: positive integers
   returns: a positive integer, the greatest common divisor of a & b.
    # Base case is when b = 0
    if b == 0:
        return a
    # Recursive case
    return gcdRecur(b, a % b)
```

## Test results



Output:
15
Test: gcdRecur(60, 9)
Output:
3
Test: gcdRecur(168, 182)
Test. gcukecur(168, 182)
Output:
14
Test: gcdRecur(153, 153)
Output:
153
Test: gcdRecur(400, 352)
Output:
16
Test: gcdRecur(175, 14)
Output:
7

Outro		
Outpu	it:	
	15	
Test:	gcdRecur(18, 22)	
Outpu	ıt:	
	2	
Test:	gcdRecur(112, 176)	
Outpu	ıt:	
	16	
,		Hide
	ming there are many ways to solve a problem. For yough, you must write your recursive function such t	

mistake is that your function and docstring do not start at the same indentation level.

Enviar

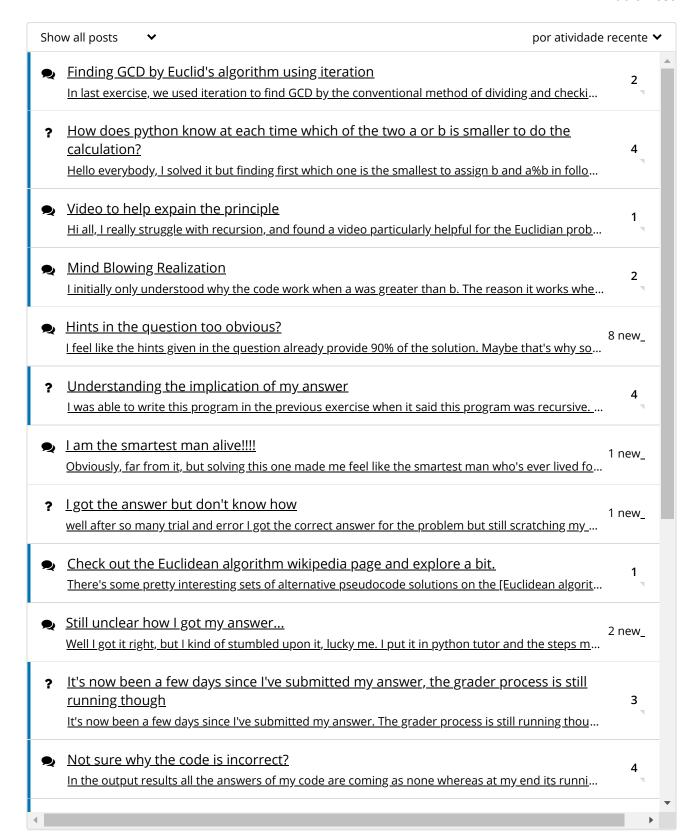
**1** Answers are displayed within the problem

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Ocultar discussão

**Topic:** Lecture 4 / Exercise: gcd recur

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