



Item Navigation

Extended Euclid's Algorithm: Code

The function `extended_gcd(a,b)` returns three values: the greatest common divisor of `a` and `b`: `d=gcd(a,b)`; and two numbers `x` and `y` such that

$$d = ax + by$$

```
1 def extended_gcd(a, b):
2     assert a >= b and b >= 0 and a + b > 0
3
4     if b == 0:
5         d, x, y = a, 1, 0
6     else:
7         (d, p, q) = extended_gcd(b, a % b)
8         x = q
9         y = p - q * (a // b)
10
11     assert a % d == 0 and b % d == 0
12     assert d == a * x + b * y
13     return (d, x, y)
14
15 extended_gcd(10,6)
16 extended_gcd(7,5)
17 extended_gcd(391,299)
18 extended_gcd(239,201)
19
```

Run

Reset

(1, -37, 44)

✓ Completed

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