# GCD(Greatest Common Divisor)

Sometimes it is called **HCF (Highest Common Factor)**.

**Descriptive code:**

int gcd(int a, int b){

if(a == 0) return b;

if(b == 0) return a;

if(a == b) return a;

if(a > b) return gcd(a-b, b);

if(b > a) return gcd(a, b-a);

}

**Short code:**

int gcd(int a, int b){

if(b == 0) return a;

return gcd(b, a%b);

}

OR

int calcGCD(int n, int m){

// Write your code here.

while(n>0 && m>0){

if(n>m) n = n%m;

else m = m%n;

}

if(n == 0) return m;

return n;

}

Complexity:logφ(min(n, m))

**InBuilt Function:**

int x= \_\_gcd(a, b);

**Complexity:**

log(n)

# LCM

LCM of two integers *a* and *b* is the smallest positive integer that is divisible by both *a* and *b*.

**Formula:**

LCM = (a\*b)/gcd(a, b)

# References

* <https://www.programiz.com/cpp-programming/examples/lcm>
* <https://www.geeksforgeeks.org/gcd-in-cpp/>
* <https://youtu.be/utZcJ0leZ_g?si=PfCW-MvN4xT9RDNJ>