

ALL Prime Factors of a number

②, 3, 5, 7, 11

$n=18 = 2 \times 3 \times 3$

$n=15 = 3 \times 5$

$n=100 = 2 \times 2 \times 5 \times 5$



3, 5, 7, 9, 11, 13, 15, ..

$n=81 \rightarrow 3 \times 3 \times 3 \times 3$



$2 \times 3 \times 3$

$n =$

```
while(n%2==0)
{
  print("2");
  n=n/2;
}
```

$n=100$ 50×2 25×2
 $\rightarrow 2 \times 2 \times 5 \times 5$

\sqrt{n} odd(n)

```
for(i=3; i<=n; i+=2)
{
  while(n%i==0)
  {
    print(i);
    n=n/i;
  }
}
```

$n=7 \times 7$

T.C. = $O(n)$

$n=90$

ans=2
 $n \% 2 == 0$

$$n = 90$$

$$= 2 \times 3 \times 3 \times 5$$

ans = 2 3 5

```

ans = 2
while (n % 2 == 0)
{
    n = n / 2;
}
// odd
for (i = 3; i <= n; i += 2)
{
    while (n % i == 0)
    {
        n = n / i;
    }
    ans = i;
}
return ans;

```

Sum of AP

$$3, 7, 11, 15, 19$$

a = 3
 d = 4
 n → nth term

$$n = 5$$

$$a = 1$$

$$d = 3$$

$$1, 4, 7, 10, 13 = 35$$

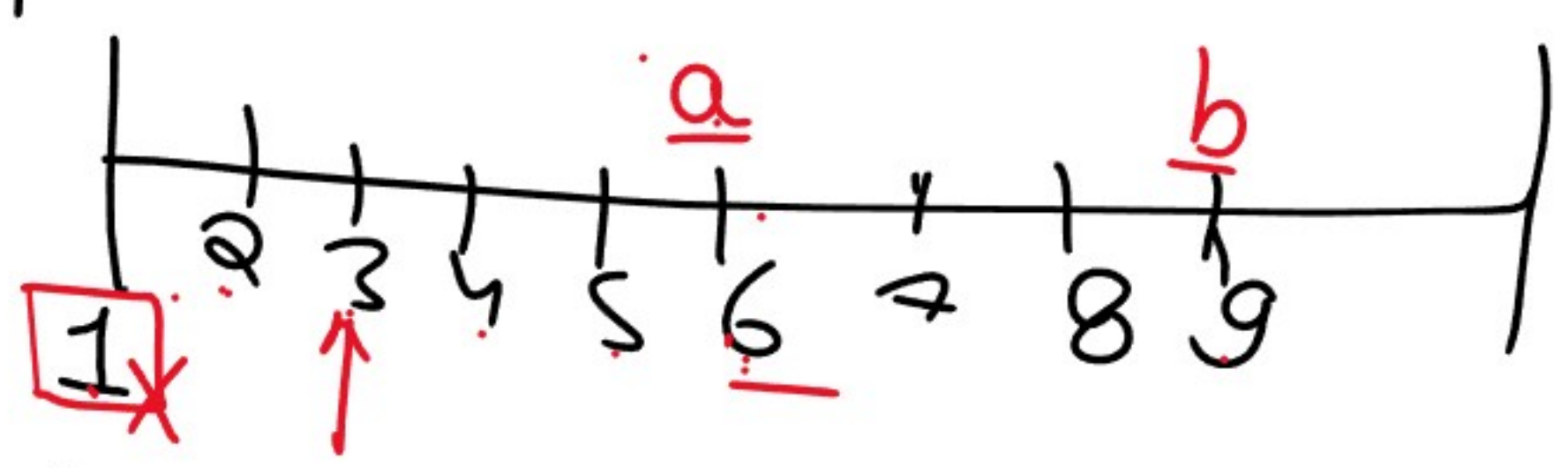
Formula for sum of AP

$$\text{sum} = \frac{n}{2} [2a + (n-1)d]$$

GCD → (HCF)
 a = 15
 b = 9

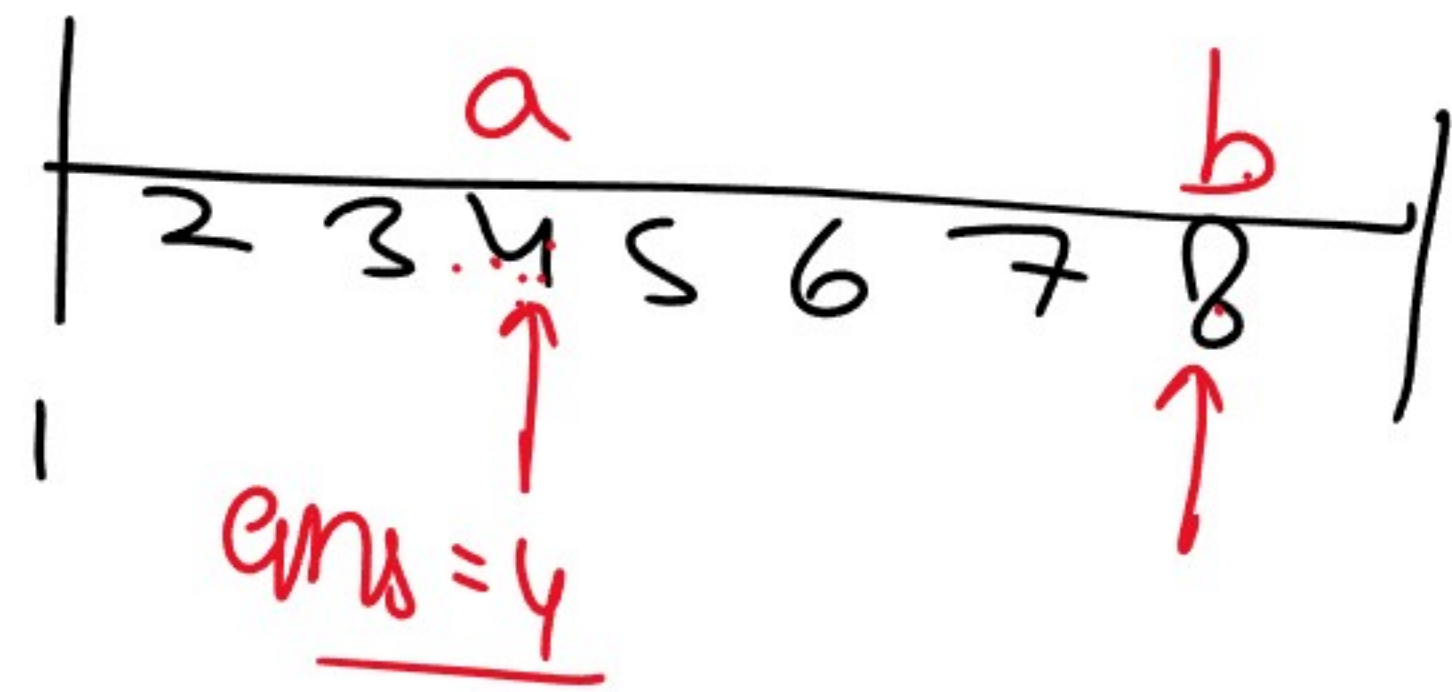


a = 11
 b = 19
 1



loop → 1 to min(a, b)

return min(a, b)



int start = min(a, b);

```
for (i = start; i >= 1; i--)  
{  
    if (a % i == 0 && b % i == 0)  
    {  
        ans = i;  
        break;  
    }  
}
```

return ans;

T.C =
min(a, b)

Euclidean GCD -

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

$$GCD(15, 81) = GCD(81, 15) = GCD(15, 6)$$

$$\rightarrow GCD(6, 3) \rightarrow GCD(3, 0)$$

$$\frac{LCM}{l} \times \frac{HCF}{h} = a \times b$$

$$l = \frac{a \times b}{h}$$

HW \rightarrow Factorial
Fibonacci

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