

**Least Common  
Multiple**

**Arabic animated  
intuition**



## Least Common Multiple

Least Common multiple is the least number that is a multiple of a and b it means it divides a and b

$$a=3$$

$$b=8$$

$$\text{lcm}(a,b)=24$$

$$3=3$$

$$8=2*2*2$$

$$\text{lcm}(3,8)=24=2*2*2*3$$

$$a=6$$

$$b=18$$

$$\text{lcm}(a,b)=18$$

$$6=2*3$$

$$18=2*3*3$$

$$\text{lcm}(6,18)=18=2*3*3$$

## Least Common Multiple

$$a=2*2*3*3*5*7$$

$$b=2*3*5*5*7*7$$

$$\text{lcm}(a,b)=2*2*3*3*5*5*7*7$$

$$a*b=2*2*2*3*3*3*5*5*5*7*7*7$$

$$\text{gcd}(a,b)=2*3*5*7$$

we can use prime factorization  
or for loop (as we did in the gcd)

in gcd we take the minimum repetition  
of prime factors  
in lcm we take the maximum repetition of  
prime factors

$$\text{lcm}(a,b)=(a*b)/\text{gcd}(a,b)$$