Arithmetic progression

- Example : n=4

  2 5 8 11

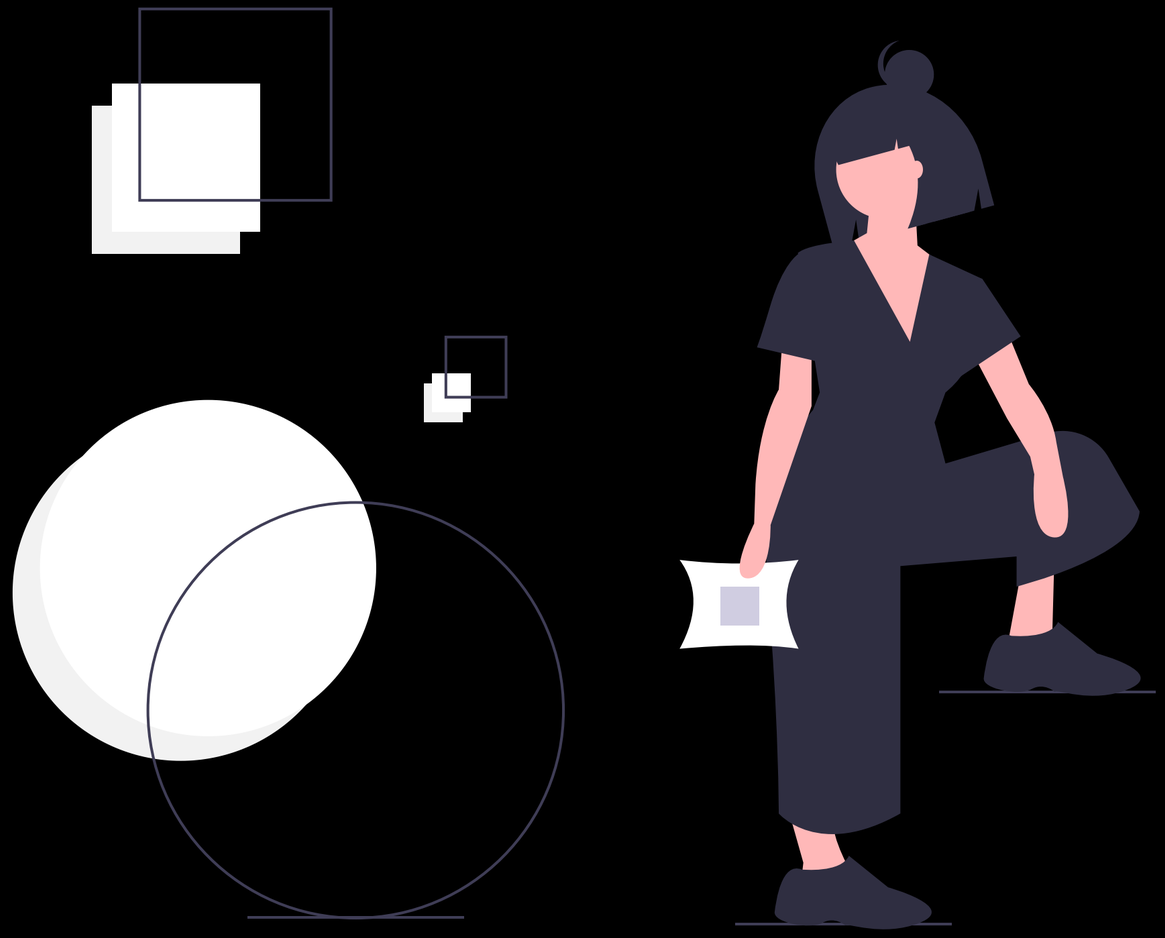
- Sum Of Numbers From a1 to an :

  ((a1+an)*n)/2

- Sum Of Numbers From a1 to an :

  ((2a1+(n-1)*d)*n)/2

Geometric Progression



Example : n=4
1 2 4 8 ratio=2

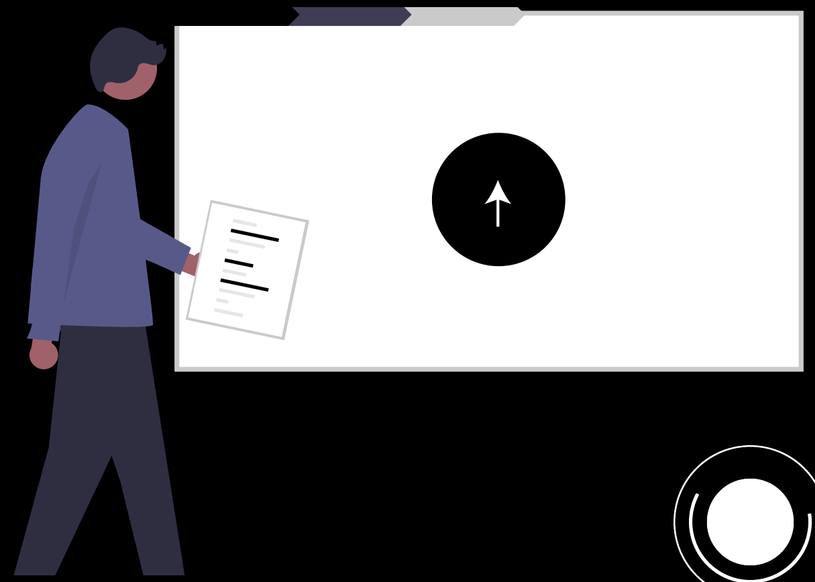
Sum=Sn
r=ratio

$$Sn = \frac{(a - r^{n})}{(1 - r)}$$

Power and Logarithm

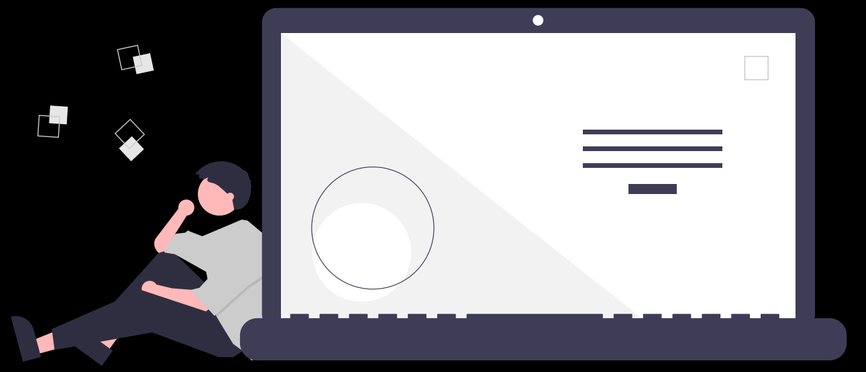
- power(x,0)=1
- power(x,1)=x
- power(x,2)=x*x
- log2(power(2,4))=log2(16)=4
- log2(power(2,3))=log2(8)=3
- log3(power(3,3))=log3(27)=3

Cumulative Sum



problem : given t queries every query contains 2 integers l and r find the sum from l to r

query Example :
array: 1 2 3 4 5
sum: 1 3 6 10 15



sum from l to r=
if (l>0){sum[r]-sum[-1];}
else{sum[r];}

Ranged sum

Example :
array : 0 0 0 0 0 0

queries example:
l=2 r=4
l=1 r=4

arr[L]+=1; arr[r+1]+=-1;
array : 1 1 0 0 0 -2

if (i){ arr[i]+=arr[i-1];}
array : 1 2 2 2 2 0