

# Formulas of Arithmetic Sequences

**Recursive** - found using the previous term  
- easy to visualize in a table

Ex: first term; New term = previous term + "d"  
 $f(1) = 1$  ;  $f(n) = f(n-1) + "d"$

Sequence: 10 15 20 25 30 35 ...

n	f(n)
1	10
2	15 +5
3	20 +5
4	25 +5
5	30 +5
6	35 +5

Find the recursive formula

first term; new = prev + "d"

$$f(1) = 10$$

$$f(n) = f(n-1) + 5$$

Recursive formula

**Explicit** - defines a sequence in terms of n  
- can be used to find a term at any location

$$f(n) = f(1) + d(n-1)$$

term?

1<sup>st</sup> term

common  
difference

(one less than  
the term #)

Sequence: 6 9 12 15 18 ... 51

$$f(n) = 6 + 3(n-1)$$

$$= 6 + 3n - 3$$

$$f(n) = 3n + 3$$

simplified