1.1 - Applications

1. Finding d:  
     
   example 1: You are given 2 consecutive terms: e.g. t4 = 7 and t5 = 2  
    🡪 d = t5 – t4 = -5.   
     
   example 2: You are given 2 non-consecutive terms: e.g. t4 = 5 and t12 = 25  
    🡪 t12 = t4 + 8d   
    25 = 5 + 8d so 8d = 20 and finally: d = 2.5
2. Finding the general term:  
     
   You have to know/find t1 and d first… e.g. t1 = 5 and d = 3  
   And then, you just leave n undefined:   
    *tn =* or *tn =* 3*n* + 2
3. Finding t1:   
     
   if you are given or can find another term and d: e.g: t4 = 12 and d = -3.  
    🡪 t4 = t1 + 3d so t1 = t4 – 3d finally t1 = 21.
4. Finding the value of a term:  
     
   Once you have the general term, just replace n by the rank of the term you want…  
   example: if , then t22 = 89
5. Finding the rank of a term/ finding the number of terms in a finite sequence:  
     
   example: you are given this arithmetic sequence: 7, -4, -15, …, -202.  
   How many terms are there? In other words, what is the rank of the term -202?  
   Let’s use the general formula when tn is -202, to find which n works…  
    so   
      
      
    and finally :   
    This sequence has 20 terms.

Attention: Subscript Issues! cf Your turn p 11.