1.2 - Applications

1. Finding the value of a sum:  
     
   You need to use the formula and you need to know/find the number of terms, and the values of the first and last terms…
2. Finding the general term when you are given the values of 2 sums:  
     
   By combining the 2 main formulas, you get: which allows you to express each sum in terms of t1 and d…  
   You get 2 equations with 2 variables, which you know how to solve…  
     
   example: S5 = 55 and S20 = 670.  
    🡪 and   
    110 = 10*t1* + 20*d*  670 = 20*t1* + 190*d*   
    or simply 11 = *t1* + 2*d* and 67 = 2*t1* + 19*d*  
    I can solve this system by substitution or by combination…  
    Let’s do combination:  
      
    To cancel t1, I multiply the 1st equation by -2 (or 2)…  
    which gives: *d* = 3  
    To cancel *d*, I multiply the 1st equation by 19 and the 2nd by -2 (or 2)…  
    which gives:   
    Finally: or