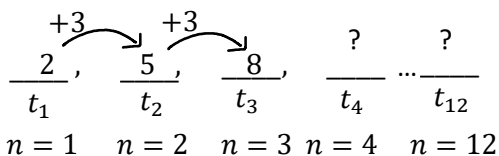


# C11 - 1.2 - Arithmetic Series Notes

2,5,8 ...  $s_{12} = ?$

$s_n = \text{sum of } n \text{ terms}$



$t_1 = 2$

$$\begin{array}{ll}
 d = t_n - t_{n-1} & d = t_n - t_{n-1} \\
 d = 8 - 5 & d = 5 - 2
 \end{array}$$

$d = 3$

$d = 3$

**What is the sum of the first twelve terms  $s_{12}$ ?  $s_{12} = ?$ ,  $n = 12$ .**

$s_n = \frac{n}{2}(2t_1 + (n - 1)d)$

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Sum of "n" terms formula: if  $t_n$  is not known.

$s_{12} = \frac{12}{2}(2(2) + (12 - 1)3)$

$s_{12} = 6(4 + (11)3)$

$s_{12} = 6(4 + 33)$

$s_{12} = 6(37)$

$s_{12} = 222$

Check your answer:

$2 + 5 + 8 + 11 + 14 + 17 + 20 + 23 + 26 + 29 + 32 + 35 = 222$



**OR**

$s_n = \frac{n}{2}(t_1 + t_n)$

$t_n = 3n - 1$

$s_n = \frac{n}{2}(t_1 + t_n)$

Sum of "n" terms formula: if  $t_n$  is known.

$s_{12} = \frac{12}{2}(2 + t_{12})$

$t_{12} = 3(12) - 1$

$t_{12} = 35$

$s_{12} = 6(2 + 35)$

$s_{12} = 222$