Homework: pg 452 #1, 2, 3, 4ace, 5, 6, 10, 13, (15)

**Arithmetic Series**

Series – the sum of the elements in a sequence.

**Problem**

The new Lourdes auditorium will have a section of seats arranged like the following:

The number of seats in each subsequent row starting from the front is listed as an arithmetic sequence: 20, 23, 26, 29,…., 68, 71.

a) How many rows are there in this section?

b) How many seats are there total in the section?

The Sum of the First ‘n’ Terms of an Arithmetic Series

 $S\_{n}=\frac{n\left(t\_{1}+t\_{n}\right)}{2}$

* Sn is the sum of the first n terms.
* n is the number of terms.
* t1 is the first term.
* tn is the nth term.

**Example 1**

Find the sum of the first 37 terms of an arithmetic series whose first term is 12 and the common difference is 9.

Use the previous equation for an arithmetic series to derive a new formula that incorporates the common difference ‘d’ instead of the value of the nth term.

**Example 2**

Consider the series 5, 9, 13, 17, …

What is the sum of the first 20 terms?

Which of one of these statements is correct?

$$S\_{10}-S\_{9}=S\_{8}$$

 $S\_{10}-S\_{9}=t\_{10} $

 $S\_{10}-S\_{9}=S\_{1}$