**D#3 - Module 3: Discussion #3 - Arithmetic and geometric progressions**

**Instructions**

Post in the discussions how strange were the progressions to you, and which of the topics seen in this third week was more surprising to you.

* You might be aware of arithmetic progressions, but does it means that you can figure out the sum of APs?
* Which among the topics shown today was more surprising to you?
  + Use personal opinions, but justify your opinion with technical reasons.

**Deliverable**

* Post your discussion in the message board until next Monday;
* Reply posts of your colleagues in the message board until next Thursday;
  + Please post your submission by selecting Reply below on or before 11:59pm next Monday;
  + To reply your colleagues' post click on the reply button of your colleague's post on or before 11:59pm next Thursday.

To be honest, all the topics seen this week were surprising to me. I had no prior knowledge of discrete mathematics or that it existed. The readings for this third week started out a bit rocky, but by using YouTube and other supplemental material, I was able to make sense of the symbols and letters. The formulas made sense now, and the material became clearer. Having said that, I used many of the concepts daily, but I was not aware that I was applying arithmetic or geometric progression.

The sum depends on the common ratio r:

* if r = 1:
  + The GP is a constant sequence.
* if r = -1
  + The GP is a bipolar alternating sequence.
* if r > 1
  + The GP increases indefinitely, and only a finite sum can be calculated.
* If r < 1
  + The GP decreases, allowing both finite and infinite sums depending on context.