YEAR 13 – MATHEMATICS (Week 5)

Subject	**Mathematics**
Class/ Section	**Year 13 – Batch A, B and C**
Week	**27th September to 1st October 2020**
Work send to students by	**Group email / Google classroom / Zoom**
Total number of lessons per week	**3**
Units	**Pure Mathematics – Year 2** **Chapter 3 – Sequences and Series**
Lessons 1 –Live Zoom lesson	**3.3 – Geometric Sequences** **3.4 – Geometric Series** **Learning objective – To find the n^{th} term of a geometric sequence and to prove and use the formula for the sum of a finite geometric series.** **Intended Learning Outcomes** --Students will be able to understand that a geometric sequence has a common ratio between consecutive terms and how to find the formula for the n^{th} term of a geometric sequence. --Students will be able to understand that a geometric series is the sum of the terms of a geometric sequence and how to find the formula for the sum of the first n terms of a geometric series.
Tasks	To complete the questions assigned from the Textbook (pdf) in their notebook. Students will be put in break out rooms during Zoom lesson to encourage collaborative learning.
Resources	1 Power point presentation 2 Pure Mathematics Year 2 3 https://www.physicsandmathstutor.com/ 4 https://www.drfrostmaths.com/ 5 https://www.examsolutions.net/

Lessons 2 –Live Zoom lesson	**3.5 – Sum to Infinity** **3.6 – Sigma Notation** **<u>Learning objective</u> – To prove and use the formula for the sum to infinity of a convergent geometric series and to use sigma notation to describe series.** **<u>Intended Learning Outcomes</u>** --Students will be able to work out the sum of n terms of geometric series. As n tends to infinity, the sum of the series is called the sum to infinity. Students will understand that as a series getting bigger, as n tends to infinity, S_n also tends to infinity and this series is called divergent series. As a series gets smaller, as n tends to infinity, S_n gets closer and closer to a finite value, $S_{infinity}$ and this is called convergent series. Students will be made to understand that the Greek capital letter sigma is used to signify a sum. We write the limits on top and bottom to show which terms you are summing.
Tasks	To complete the questions assigned from the Textbook (pdf) in their notebook. Students will be put in break out rooms during Zoom lesson to encourage collaborative learning.
Resources	1. Power point presentation 2. Pure Mathematics Year 2 3. https://www.physicsandmathstutor.com/ 4. https://www.drfrostmaths.com/ 5. https://www.examsolutions.net/
Lessons 3 –Live Zoom lesson	**3.7 – Recurrence relations** **3.8 – Modelling with Series** **<u>Learning objective</u> – To generate sequences from recurrence relations and model real life situations with sequences and series.** **<u>Intended Learning Outcomes</u>** --Students will be able to understand, if you know the rule to get from one term to the next in a sequence you can write a recurrence relation. A recurrence relation of the form $u_{n+1} = f(u_n)$ defines each term of a sequence as a function of the previous term. Introduce that a sequence is increasing if $u_{n+1} > u_n$, for all $n \in N$, a sequence is decreasing if $u_{n+1} < u_n$, for all $n \in N$, a sequence is periodic if the terms repeat in a cycle. For a periodic sequence there is an integer k such that $u_{n+k} = u_n$ for all $n \in N$. The value of k is called the order of the sequence. Students will be able to understand that geometric sequence and series can be related to real life situations. For example if a person's salary increases by the same percentage every year, their salaried each year would form a geometric sequence and the amount they had been paid in total over n years would be modelled by the corresponding geometric series.
Tasks	To complete the questions assigned from the Textbook (pdf) in their notebook. Students will be put in break out rooms during Zoom lesson to encourage collaborative learning.
Resource	1. Power point presentation 2. Pure Mathematics Year 2 3. https://www.physicsandmathstutor.com/ 4. https://www.drfrostmaths.com/ **5.** https://www.examsolutions.net/