

YEAR 13 – MATHEMATICS (Week 5)

Subject	Mathematics
Class/ Section	Year 13 – Batch A, B and C
Week	26th September to 30th September 2021
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 Chapter 5 - Radians
Lessons 1 –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/Activities	The Teacher would introduce the concept of recurrence relations and will make students to understand about the sum to periodic sequence. Students will explore more examples and the implementation of geometric sequence and series in real life.
Lessons 2 –Live Zoom lesson	5.4 – Solving trigonometric equations <u>Learning objective</u> – To solve trigonometric equations in radians. <u>Intended Learning Outcomes</u> -- Students will be able to understand how to solve trigonometric equations in radians, the same way they solved trigonometric equations in degrees. When the interval is given in radians, students make sure to give the answer in radians. Students are encouraged to always check that their final values are within the given range.
Tasks/Activities	The Teacher would recall the concept of solving trigonometric equations in degree mode and make students understand how to get the solutions in

	<p>radian mode. Students will explore more examples and the implementation of trigonometric equations in real life.</p>
<p>Lessons 3 –Live Zoom lesson</p>	<p>5.5 – Small angle approximations <u>Learning objective</u> – To use approximate trigonometric values when θ is small.</p> <p><u>Intended Learning Outcomes</u> --Students will be able to use radians to find approximations for the values of $\sin \theta$, $\cos \theta$ and $\tan \theta$. When θ is small and measured in radians: $\sin \theta \approx \theta$, $\tan \theta \approx \theta$ and $\cos \theta \approx 1 - \frac{\theta^2}{2}$</p>
<p>Tasks/Activities</p>	<p>The Teacher would introduce the concept of small angle approximation. Students will explore more examples and the implementation small angle approximation in real life.</p>
<p>Assessment Criteria/ Essential questions</p>	<p>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.</p> <p>Essential Question that are according to the Pearson Edexcel specification</p> <p>C2 old specification June 2007 - Question 8 C2 old specification Jan 2007 - Question 10 C3 old specification June 2005 - Question 5 C3 old specification Jan 2009 - Question 8 P1 New specification June 2018 – Question 1</p> <p>For example, assessment objectives expected by the board with respect to the above question is listed below.</p> <p>AO1: select and correctly carry out routine procedures AO2: use mathematical language and notation correctly AO3: translate problems in mathematical and non-mathematical contexts into mathematical processes</p>
<p>Resources</p>	<ol style="list-style-type: none"> 1. Power point presentation 2. Pure Mathematics Year 2 3. https://www.physicsandmathstutor.com/ 4. https://www.drfrostmaths.com/ 5. https://www.examsolutions.net/