YEAR 12 – MATHEMATICS (Week 31)

Subject	Mathematics (Pure Math & Stats)
Class/ Section	Year 12 – Batch 1, 2 and 3
Week	18th April -22nd April 2021
Work send to students by	Group email / Google classroom / Zoom
Total number of lessons per week	6
Units	PURE MATH- Ch14 (Exponentials and logarithms) 14.1 Exponential functions 14.2 $y=e^x$ 14.3 Exponential Modelling 14.4 Logarithms STATISTICS – Book 2 – Ch 3 (The Normal Distribution)
Lessons 1 –Live Zoom lesson Tasks Resources	PURE MATH- Ch14 (Exponentials and logarithms) 14.1 Exponential functions 14.2 $y=e^x$ **Learning objective** : Sketch graphs of the form $y=a^x$, $y=e^x$ Transformations of these graphs. Differentiate e^{kx} and understand why this result is important. **Intended Learning Outcomes** - Students will be able to sketch graphs of the form $y=a^x$, $y=e^x$ Transformations of these graphs. Students will be able to differentiate the function $y=e^{kx}$. 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. 1. Power point presentation 2. Pure Mathematics Year 1 / AS 3. https://www.physicsandmathstutor.com/ 4. https://www.drfrostmaths.com/ 5. *https://www.examsolutions.net/a-levelmaths/edexcel/edexcel-a-level-maths-past-papers/*

Lesson 2- Live Zoom lesson	**PURE MATH- Ch14 (Exponentials and logarithms)** **14.3 Exponential Modelling** **Learning objective** – To use and interpret models that use exponential functions . **Intended Learning Outcomes** --Students will be able to use e ^{x} to model situations such as population growth , where the rate of increase is proportional to the size of the population at any instant . Similarly e $^{-x}$ can be used to model situations such radioactive decay, where the rate of decrease is proportional to the number of atoms remaining .
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 1 / AS 3. https://www.physicsandmathstutor.com/ 4. https://www.drfrostmaths.com/ 5. *https://www.examsolutions.net/a-levelmaths/edexcel/edexcel-a-level-maths-past-papers/*
Lesson 3 –Live Zoom lesson	**PURE MATH- Ch14 (Exponentials and logarithms)** **14.4 Logarithms** **Learning objective** –To recognise the relationship between exponents and logarithms. **Intended Learning Outcomes**-Students will be able to recognise the relationship between exponents and logarithms. The inverses of exponential functions are called logarithms. A relationship which expressed using an exponent can also be written in terms of logarithms .log n to base a is equivalent to a ^{x} =n (not equal to 1)
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 1 / AS 3. https://www.physicsandmathstutor.com/ 4. https://www.drfrostmaths.com/ 5. *https://www.examsolutions.net/a-levelmaths/edexcel/edexcel-a-level-maths-past-papers/*

Lessons 4 –Live Zoom lesson	Book 2 Chapter 3: 3.3 – The inverse normal distribution function **Learning objective** – To find the percentage points on a standard normal curve. **Intended Learning Outcomes** --Students will be able to understand that, for a given probability, p, you can use your calculator to find a value of a such that $P(X < a) = p$. This function is usually called the inverse normal distribution function on your calculator.
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. Statistics and Mechanics Year 2 3. https://www.physicsandmathstutor.com/ 4. https://www.drfrostmaths.com/ 5. https://www.examsolutions.net/a-levelmaths/edexcel/edexcel-a-level-maths-past-papers/
Lesson 5 –Live Zoom lesson	Book 2 Chapter 3: 3.4 – The standard normal distribution **Learning objective** – To calculate values on a standard normal curve. **Intended Learning Outcomes** --Students will be able to understand standardizing normally distributed random variables can be done by coding the data so that it can be modelled by the standard normal distribution. The standard normal distribution has mean 0 and standard deviation 1. If $X \sim N(\mu, \sigma^2)$ is a normal random variable with mean μ and standard deviation σ, then you can code X using the formula: $$Z = \frac{X - \mu}{\sigma}$$ The resulting z – values will be normally distributed with mean 0 and standard deviation 1. For the standard normal curve $Z \sim N(0, 1^2)$, the probability $P(Z < a)$ is sometimes written as $\emptyset$ (a). We can find it by entering $\mu = 0$ and $\sigma = 1$ into the normal cumulative distribution function on our calculator.
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. 1. Power point presentation

Resource	2. Statistics and Mechanics Year 2
	3. https://www.physicsandmathstutor.com/
	4. https://www.drfrostmaths.com/
	5. https://www.examsolutions.net/a-levelmaths/edexcel/edexcel-a-level-maths-past-papers/
Lessons 6 –GOOGLE CLASS ROOM	**To do problems involving Integration.**
	Intended Learning Outcome:
	By the end of the lesson students will be able to do problems from the Mixed exercise – Chapter 2 (Conditional Probability). Pages 66 - 67. (Questions 6 to 12)
Tasks	
	Work will be assigned in Google Classroom.
Resource	
	Text Book : Statistics and Mechanics Year 2