# Shenley Brook End Sixth Form

# Summer transition tasks for

# A Level Further Mathematics

# Due date Monday 11 September 2023

# Further Maths – Edexcel

## Objectives:

- Multiply and divide integer powers.
- Expand a single term over brackets and collect like terms.
- Expand the product of two or three expressions.
- Factorise linear, quadratic, and simple cubic expressions.
- Know and use the laws of indices.
- Simplify and use the rules of surds.
- Rationalise denominators.
- Understand and use the definitions of imaginary and complex numbers.
- Add and subtract complex numbers.
- Multiply complex numbers.
- Understand the definition of a complex conjugate.
- Divide complex numbers.

## Tasks

1) Work through Task 1 – see below for this
2) https://forms.office.com/Pages/ResponsePage.aspx?id=C8YNoxjsuU2k1-9rTvPuiqMCMxjWSIpLrEG-AvbWwC9UM0ozWTY5STRLSlk0SERHWUZPMkM3UFdYTC4u
3) Baseline Assessment first maths lesson in September

## Resources/Research

- CGP Headstart to A Level Maths
- www.Corbettmaths.com
- www.mathsgenie.co.uk
- www.physicsandmathstutor.com

## AS Level Textbooks Used by SBE

- Pearson Edexcel AS and A level Mathematics Pure Mathematics Year 1/AS Textbook + e-book (A level Maths and Further Maths 2017)
- Pearson Edexcel AS and A level Mathematics Statistics & Mechanics Year 1/AS Textbook + e-book (A level Maths and Further Maths 2017)
- Pearson Edexcel AS and A Level Further Mathematics Core Pure Mathematics Book1/AS Textbook + e-book (A level Maths and Further Maths 2017)
- Pearson Edexcel AS and A level Further Mathematics Further Mechanics 1 Textbook +e-book (A level Maths and Further Maths 2017)

## Wider Reading

- **Does God Play Dice** by *Ian Stewart*
- **Chaos** by *James Gleick*
- **The Codebook** by *Simon Singh*

- **The Mathematics of Ciphers** by *S.C. Coutinho*
- **In Code** by *Sara Flannery*
- **A History of Mathematics** by *Carl B. Boyer*
- **Infinity: The Quest to Think the Unthinkable** by *Brian Clegg*
- **E, the Story of a Number** by *Eli Maor*
- **The Man Who Loved Only Numbers** by *Paul Hoffman*
- **My Brain is Open: The Mathematical Journeys of Paul Erdos** by *Bruce Schecter*
- **The Man who knew Infinity** by *Robert Kanigel*
- **Abel's Proof: An Essay on the Sources and Meaning of Mathematical Unsolvability** by *Peter Pesic*
- **A Brief History of Time** by *Stephen Hawking*
- **The Elegant Universe** by *Brian Greene*
- **The Fabric of the Cosmos** by *Brian Greene*
- **Introduction to Mathematical Philosophy** by *Bertrand Russell*
- **A Mathematician's Apology** by *G. H. Hardy*
- **Thinking About Mathematics** by *Stewart Shapiro*

**Submission Date**

**11th September**

**Task 1**

1) Watch and make notes on the following. Some links have more than one video make sure you watch and make notes on them all!

- Introduction to indices (exponents) | ExamSolutions | Pure-Maths-A-Level | A-Level | Edexcel
- Multiplication rules for indices | ExamSolutions | Pure-Maths-A-Level | A-Level | Edexcel
- Division rule for indices | ExamSolutions | Pure-Maths-A-Level | A-Level | Edexcel
- Negative indices | ExamSolutions | Pure-Maths-A-Level | A-Level | Edexcel
- Introduction to factorising | ExamSolutions | Pure-Maths-A-Level | A-Level | Edexcel
- Highest common factor (HCF) | ExamSolutions | Pure-Maths-A-Level | A-Level | Edexcel
- Factorising by grouping | ExamSolutions | Pure-Maths-A-Level | A-Level | Edexcel
- Factorising quadratic expressions | ExamSolutions | Pure-Maths-A-Level | A-Level | Edexcel
- Mixed Exercise - Factorising | ExamSolutions | Pure-Maths-A-Level | A-Level | Edexcel
- Surds - introduction & simplifying | ExamSolutions | Pure-Maths-A-Level | A-Level | Edexcel
- Addition and subtraction of surds | ExamSolutions | Pure-Maths-A-Level | A-Level | Edexcel
- Multiplying surds | ExamSolutions | Pure-Maths-A-Level | A-Level | Edexcel
- Dividing surds | ExamSolutions | Pure-Maths-A-Level | A-Level | Edexcel
- Rationalising surds | ExamSolutions | Pure-Maths-A-Level | A-Level | Edexcel
- GCSE expanding brackets | Examsolutions
- Real and imaginary numbers | ExamSolutions | Further-Core-Maths-A-Level | A-Level | Edexcel
- Addition, subtraction and multiplying complex numbers and simplifying powers of i | ExamSolutions | Further-Core-Maths-A-Level | A-Level | Edexcel
- Complex conjugates | ExamSolutions | Further-Core-Maths-A-Level | A-Level | Edexcel

- Division of a complex number by a complex number | ExamSolutions | Further-Core-Maths-A-Level | A-Level | Edexcel

2) Complete the assessment below.  This is an online form.  Please enter your full name and school you attended for GCSE. Once completed the form will allow you to save or print your answer at the end please do this and bring to your first maths lesson in September.

    https://forms.office.com/Pages/ResponsePage.aspx?id=C8YNoxjsuU2k1-9rTvPuiqMCMxjWSIpLrEG-AvbWwC9UM0ozWTY5STRLSlk0SERHWUZPMkM3UFdYTC4u