

Further Maths Y11 into Y12 Transition Task

A Brief Introduction to Complex Numbers

Task A: Read the information below

A fundamental problem of the number system is that there is no solution to the following equation

$$x^2 = -1$$

While this does not affect our day to day lives, there are times when we could do with a way to solve this.

This is where something called an **Imaginary Number** comes in handy. To use these we have the definition as follows.

$$i = \sqrt{-1}$$

This means we can now solve our equation " $x^2 = -1$ " with the solution, $x = i$.

We also have Complex Numbers. These are a combination of real and imaginary numbers. These take the form

$$z = ai + b \quad (\text{where } a \text{ and } b \text{ are real})$$

An example could be $2i + 3$. This complex number has 2 lots of the imaginary part " i " and the number 3 is the real part.

Task 2: Research complex numbers and make a poster

Use the information above and your own research to produce a poster of at least A3 size on Complex Numbers. Google is of course a great way to find things out. This task will really give you a boost for Y12 Further Maths at the Friary.

Here are eight key areas a good poster will cover

An explanation of i	Definition of complex and imaginary
How we use complex numbers	Examples of equations with complex solutions
Description of an Argand diagram	Examples of complex numbers plotted on an Argand diagram
Examples of adding complex numbers	Examples of multiplying with complex numbers

Remember: We do not expect you to be an expert on complex numbers and understand them perfectly. We just want evidence that you have found out something about them.