

Thinking Mathematically

Here is a new assignment. It's a short paper in the field of Mathematics.

There are SIX (6) topics to choose from. Please choose the one that you think that you could do best.

History and Applications of Complex Numbers

Complex numbers were initially developed to handle unsolvable quadratic and cubic equations. The world of complex numbers has grown tremendously, to integrate with coordinate systems, vectors, matrices, and even quantum mechanics. Complex numbers are represented in the general form as:

$$a + ib$$

Where i represents $\sqrt{-1}$, such that i times i is -1 , a and b are real numbers either of which can be 0. The duality of complex numbers represents their distinctive feature, as each complex number comprises of a real part and an imaginary part. This duality attributes to a variety of applications of complex numbers in several domains of real life.

Brief History of Complex Numbers

A look at the history of complex numbers suggests that they were first discovered by Cardano when he made an attempt to solve cubic equations with real coefficients and aimed at finding real solutions for them in the 1500s. In this procedure he encountered square roots of negative numbers, which were eventually dropped out by him. He referred these negative roots as "imaginary". Cardano actually generated a formula applicable to all cubic equations. He put forward the problem of splitting 10 into two parts whose product is 40, which can be represented in the form of an equation as $(x)(10 - x) = 40$. $5 + \sqrt{-15}$ and $5 - \sqrt{-15}$ are the solutions of this equation, however, their impossible nature was simply ignored by Cardano (Merino, 2006).