Complex Numbers

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Abstract

In this article we study the complexes in an other point of view.

Definition The Complex field is defined like IR/(x^2+1) we assume, like all know, $i \coloneqq sqrt\{-1\}$

And we view complexes like IR(i)

Now, we know that the complex numbers are rapresented on the plane but it is only the graph of the vectorial space of the complexes in other word they can be rapresented in the following way

We take a point in the real plane with polar coordinate pcosO i + psinO j , where p is positive real number and O is in [0,2pi[

And know that if we moltiplicate a complex 'A' with i, 'A' will rotate by an angle of pi/2 anticlockwise

So our point in real plane becomes the complex point (pcosO-ipsinO)i
We note that the complexes are all on the complex straight line y=0

We saw also that (-i,0),(i,0) is the solution of the system y=0 && y=x^2+1
(-2i,0),(2i,0) is the solution of the system y=0 && y = x^2+4
(-i+1,0),(i+1,0)is the solution of the system y=0 && y=$(x-1)^2$+1 etc etc

So the some complexes are rapresented on the line like this

… -1+i -1 0 -i -2i -3i … 3i 2i i 0 1 1-i 1-2i 1+i 1 2 2-i Pi Pi-i …

The position of -i ad i etc etc depends by the rotation and the rapresentation of real plane in this the author keep the same direction of the angles i.e. anticlockwise.