Answer Question #48817 – Math – Complex Analysis

let z = -(4+4i) evaluate
1) Ln z
2) ln z for pi branch
3) ln z for (-3pi /4) branch

Solution

z=-(4+4i)

Let's transform z to an exponential form: z = 4*sqrt(2) * exp(-3*pi*i/4);

So, in general:

1) Ln z = ln(4*sqrt(2)) + i*(-3*pi/4 + 2*pi*k)
2) For pi branch: Ln z = ln(4*sqrt(2)) + i*(5*pi/4)
3) For -3pi/4 branch: Ln z = ln(4*sqrt(2)) + i*(-3*pi/4)