Problem 4.5

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Homework due Nov 14, 2020 19:00 EST

Problem 4.5

0.0/3.0 points (graded)

Let D be an entire complex plane with branch cuts along the rays $[-1, -1+i\infty]$ and $[1, +\infty]$.

Given the function:

$$\varphi(z) = \ln(1-z^2), \ \ \varphi(0) = -2\pi i.$$

Find:

1) $\varphi(-2)$;

2) $\varphi(-i)$;

3) $\varphi\left(\frac{-1+\sqrt{3}i}{2}\right)$.

Use i for complex unity, and ln() for $\ln()$. Avoid using square roots or powers inside logarithms.

1)
$\varphi(-2) =$

2)
$\varphi(-i) =$

3)
$\varphi\left(\frac{-1+\sqrt{3}i}{2}\right)$

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