

Multivariable and Complex Analysis Quiz V

SHOW ALL WORK TO RECEIVE FULL CREDIT

1. (10) Express the number $\frac{-1 + 3i}{2 + 5i}$ in the form $a + bi$.

2. (15) Find all solutions of the equation $\sin z = 100$.

3. (20) Find the corresponding analytic function $f(z) = u(x, y) + iv(x, y)$ if

$$v(x, y) = xy$$

4. (15) Find $\left(\frac{1}{2} + \frac{1}{2}i\right)^{10}$.

5. (20) Find the six sixth roots of $z = -8$ and graph these roots in the complex plane.