

Show all work. 5 points each.

1. If $w = f(z) = u + iv$ is analytic, show that the Jacobian of the associated transform is $|f'(z)|$. What properties do you use.

2. Find an analytic function with real and imaginary parts $u = x^2 - y^2 + y$, $v = 2xy - x$ and use problem 1 to compute the Jacobian.