Complex variable course work, 2023

**Part A.**

1. For each of the following functions, find f(z+3), f(1/z)
2. f(z) =z-1 (b) f(z) =z2 (c) 
3. Prove the following 
4. Simplify (a) (b) 
5. Find all the roots of : (a)  (b)  (c) 
6. Express in the polar coordinate form u(r, 0) + *iv(r,* 0). Hence find and express it in Cartesian form.

Part B

1. Use Cauchy - Riemann equation for the derivative of 
2. Evaluate (a**)**  (b)
3. Suppose *f(z) = u(z)* + iv(z), and *z(t) = x(t)* + *iy(t)* is a parameterization for the contour C. Then This is called the counChapter 1. Complex NumbersChapter 1. Complex Numberstour uintegral of f(z). using this formula to”
4. Evaluate *,* where C is the line segment from 1 to 1 + i and z(t) = 1 + *it* for 0 < f < 1.
5. Evaluate  where C given by *C:* z(t) = cos *t* + i sin *t* for 

**End**