

Quiz #5

Monday, October 24 2016

Duration: 20 min

NAME: _____

Please write clearly and properly. Always explain your answers.

Problem	Grade
1	
2	
Total	

Problem 1 (~ 4 points.).

- (1) Recall the definition of the derivatives $\frac{\partial f}{\partial z}$ and $\frac{\partial f}{\partial \bar{z}}$ in terms of $\frac{\partial f}{\partial x}$ and $\frac{\partial f}{\partial y}$.

- (2) Recall the Cauchy-Riemann equations in two different versions.

Problem 2 (~ 10 points.).

Consider the complex-valued function f of a complex variable defined by:

$$f(z) = e^{1+2z} .$$

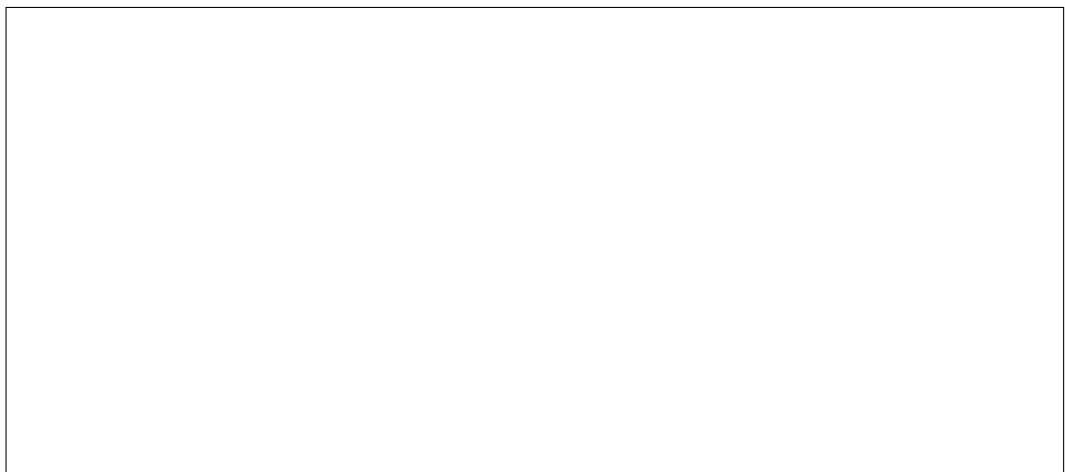
- (1) Is f holomorphic? Is f entire?



- (2) Compute the derivative of f .



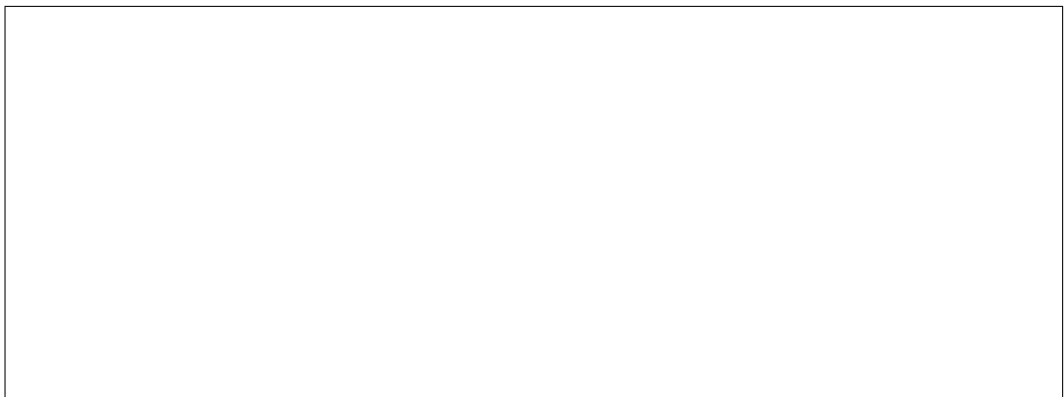
- (3) Express f as a function of two real variables (x, y) , where $z = x + iy$.



(4) Compute the partial derivatives $\frac{\partial f}{\partial x}$ and $\frac{\partial f}{\partial y}$.



(5) Compute the derivatives $\frac{\partial f}{\partial z}$ and $\frac{\partial f}{\partial \bar{z}}$ using (4).



(6) Recover from what you found in (5) that f is holomorphic and that its derivative is what you found in (2).

