

1. Is the function $f(z) = \operatorname{Re}(\cos z) + \operatorname{Im}(\cos z)$ analytic?
2. Find all entire functions of the form $f(x, y) = u(y) + iv(x)$.
3. Is the function

$$f(z) = \begin{cases} \frac{\sin(z)}{z} & , z \neq 0 \\ 1 & , z = 0 \end{cases}$$

entire?

4. Describe maximal region on which the function $f(z) = \frac{\sin(\frac{1}{z^5-1})}{z^3+1}$ is analytic.
5. BC, p. 160-163, 1c,1d, 1e (for grade), 6, 7 (for grade)
6. BC, p. 17-172, 1a-1e, 3(for grade), 6.
7. BC, p.195-197, 2, 3, 7, 13(for grade).