
Homework 4
Due: Friday, September 15

1. [BC] 10.1, 10.2, 10.3. Give a brief explanation for each answer; one-word responses will not suffice.
2. Let S be a subset of \mathbb{C} . Prove that every point of S is an interior point of S if and only if S contains none of its boundary points. (This is asserted, but left unproved, in the text.)
3. [BC] 10.10.
4. Suppose that S and T are open subsets of \mathbb{C} . Show that $S \cup T$ is open, too.
5. Let S and T be domains. Is $S \cap T$ necessarily a domain? Prove or give a counterexample.
6. [BC] 11.1.
7. Write each of the following functions in the form $w = u(x, y) + iv(x, y)$.
 - (a) $f(z) = 3z^2 + 5z + i + 1$.
 - (b) $g(z) = \exp(z) + \exp(-z)$.