ASSIGNMENT 2

(1) Question 3 page 64 of the textbook
(2) Question 6 page 65 of the textbook
(3) Question 7 page 65 of the textbook. Recall that $\mathbb{D}$ is the unit circle.
(4) Question 13 page 67 of the textbook
(5) Suppose that $f(z)$ is analytic and satisfies $|f(z) - 1| < 1$ on an open set Ω. Show that
$$\int_\gamma \frac{f^{'}(z)}{f(z)} dz = 0$$
for every closed piecewise smooth curve γ contained in Ω.
(6) Prove that a function analytic on the whole complex plane satisfying $|f(z)| < |z|^n$ for some n and for large $|z|$ is a polynomial.