COMPLEX ANALYSIS, HW # 2

Chapter 6, problems 6, 8,   Chapter 11, problems 4, 5, 16   and these problems:

Problem 1.

Describe $Aut(U)$, where $U = \mathbb{D}\setminus\left\{\frac{1}{2}, -\frac{1}{2}\right\}$.

Problem 2.

Let f be an analytic function that maps the open disc into itself and vanishes at the origin. Prove that for all $z \in D(0,1)$ we have
$$|f(z) + f(-z)| \leq 2|z|^2$$