

**MATH 463 (PROFESSOR GREEN) SUPPLEMENTARY
PROBLEM SET #2**

12. Work problem 1 of Section 33 with the function

$$f(z) = \frac{z^2 + 2z - 5}{z^2}.$$

13. Work problem 3 of Section 33 with

$$f(z) = \exp(3\pi\bar{z}).$$

14. Write a power series (possibly including negative powers) that represents the function $\frac{1}{1+z^2}$ in each of the following domains:

- (a) $|z| < 1$
- (b) $0 < |z - i| < 2$
- (c) $0 < |z + i| < 2$
- (d) $|z| > 1$