
Homework 2
Due: Friday, September 1

1. [BC] 4.4, 4.5.
2. [BC] 5.1, 5.2, 5.3.
3. (a) [BC] 5.11.
(b) Describe all z for which $\bar{z} = iz$. Prove that your answer is correct.
4. [BC] 5.14
5. [BC] 7.1, 7.6.
6. Assume α and β are real numbers.
 - (a) Write each of $e^{i\alpha}$, $e^{i\beta}$, and $e^{i(\alpha+\beta)}$ in rectangular coordinates.
 - (b) Prove the following formulas from trigonometry, *without using trigonometry*.

$$\cos(\alpha + \beta) = \cos(\alpha) \cos(\beta) - \sin(\alpha) \sin(\beta)$$

$$\sin(\alpha + \beta) = \sin(\alpha) \cos(\beta) + \sin(\beta) \cos(\alpha)$$

(HINT: $e^{i\alpha}e^{i\beta} = e^{i(\alpha+\beta)}$.)