

Math 371 - Lie Theory

Homework Assignment 5 Due Sep 30

1. Problem 3.2.1 from the textbook.
2. Problem 3.2.2 from the textbook.
3. Problem 3.2.3 from the textbook.
4. Let A be an $n \times n$ quaternion matrix and x an $n \times 1$ quaternion vector. Prove that

$$\overline{Ax}^{Tr} = \bar{x}^{Tr} \bar{A}^{Tr}.$$

Note that for quaternions neither $\overline{Ax} = \bar{A}\bar{x}$ nor $(Ax)^{Tr} = x^{Tr} A^{Tr}$ hold in general.

5. Problem 3.4.1 from the textbook.
6. Problem 3.4.2 from the textbook.
7. Problem 3.4.3 from the textbook.
8. Problem 3.4.4 from the textbook.
9. Problem 3.4.5 from the textbook.
10. Problem 3.4.6 from the textbook.