

Lie groups

Homework #1, due Wednesday, February 7.

Read or review sections 6, 7, 20, 21 of "Introduction to Lie algebras and representation theory" by J.Humphreys (available online at Columbia library) and write solutions to the following problems from the book.

Chapter 6 (pages 30-31), problems 3, 4, 5.

Chapter 7 (page 34), problems 2, 4.

Chapter 20 (pages 110-111), problems 2ab, 8, 10.

Use the structure of the McKay graphs of binary groups A_4^* , S_4^* and A_5^* to determine for which of these groups each irreducible representation is self-dual. For reference, you can use notes by Qi You "McKay Correspondence" at www.its.caltech.edu/~youqi/mckay.pdf, diagrams are on page 17.