MATH 8174. HOMEWORK 2
Due Friday, September 18

Note: [Hum] = Humphreys, [EW] = Erdmann–Wildon

(1) Read Chapters 3 and 7 of [Hum] and Chapters 7 and 8 of [EW].

(2) [Hum] 2.5.

(3) [Hum] 2.10.

(4) [EW] 7.8.

(5) [EW] 7.9. (See also Section 3.2.1 of [EW].)

(6) [EW] 7.12. (The definition of $\mathbb{R}^3_\wedge$ is given on Page 2 of [EW].)

(7) [EW] 8.2.

(8) [EW] 8.3.

(9) Let V be the natural representation of $\mathfrak{sl}_2(\mathbb{C})$. Show that for any nonnegative integer d, the symmetric power S^dV is isomorphic to the irreducible $\mathfrak{sl}_2(\mathbb{C})$-module V_d from Section 8.1 of [EW].