

REPRESENTATION THEORY, HINTS TO PSET 4

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Problem 2. Most of this problem is a direct computation... In part 5) you need to interpolate from different $a = q^n$.

Problem 3. a) Analyze the relations in \dot{U}_ϵ . And/or degenerate.

c) Emulate the proof of Lemma 2.7 in Lecture 4.

d) Let V' be an irreducible u_ϵ -submodule of an irreducible \dot{U}_ϵ -module V . Show that $V'' := \text{Hom}_{u_\epsilon}(V', V)$ is a $U(\mathfrak{sl}_2)$ -module. Then check that we have a \dot{U}_ϵ -module homomorphism $V' \otimes \text{Fr}^*(V'') \rightarrow V$.