

Problem set 4- due November 11. Write clear and complete solutions for each problem. You may send them to me via email (cui177 at purdue dot edu, preferred method) or in class. Please make your writing clearly legible.

1. Hopefully you have some basic coding skills or use one of the mathematical softwares, e.g. Mathematica, Maple, Matlab, etc. (If not, please talk to me, and I will assign a different problem to you.) Write a program to compute the F -symbols and R -symbols for the purification category of $\text{TLJ}(A)$ where $A = ie^{\frac{\pi i}{8}}$. Your solution should list all matrices F_d^{abc} whenever $\text{Hom}(d, a \otimes b \otimes c) \neq 0$. It's possible that different values of (a, b, c, d) share the same F -matrix. You can group them together in this case to simply the list. List all R -symbols R_c^{ab} whenever $\text{Hom}(c, a \otimes b) \neq 0$. It's preferred that you keep the F - and R -symbols in their algebraic expressions, but not decimals.