

MAS231 Assignment 2

Geometry II
Due on 28 January 2008

Write your name and student number at the top of your assignment before handing it in. Staple all pages together. Post the assignment in the Green Post-Box on the ground floor in the Maths building before 16:00 on Monday.

1. Compute the writhe of the following knot diagram



2. Using the definitions, compute the Kauffman bracket and then the Jones polynomial for the following knot diagrams



and



3. By using the invariance of the Kauffman Bracket under Reidemeister Move II, compute the Kauffman bracket of the following knot diagram



4. Using your answer to question 3, compute the Kauffman Bracket for the following link



5. State the relationship between the Jones polynomial $J(t)$ of a knot and the Jones polynomial of its mirror reflection $J_R(t)$. If $J(t) = \sum_{k=-\infty}^{\infty} c_k t^k$ for some numbers c_k , then prove that $c_k = c_{-k}$ for all k whenever the knot is achiral.