

Problem Set 2

1. (a) Compute the Jones polynomials of the right-handed and the left-handed trefoils and conclude that trefoil is a chiral knot.
 (b) By drawing some pictures justify that the figure-eight knot is amphi-chiral.
2. (a) Compute the Jones polynomials of $(2, q)$ -torus links sketched in Figure 1a.
 (b) For any odd number q , let L_q be the link given in Figure 1b, which is the union of the torus knot $T_{2,q}$ and an unknot as in the figure. Firstly show that all links L_q have homeomorphic complements. Next, compute the Jones polynomial of these links and conclude that Jones polynomial is not determined by the link complement.
3. For a knot diagram D , the unknotting number is the minimum number of crossing switches which turns D into a diagram for the unknot. Show that if D has n crossings, then the unknotting number of D is at most $\frac{n-1}{2}$.

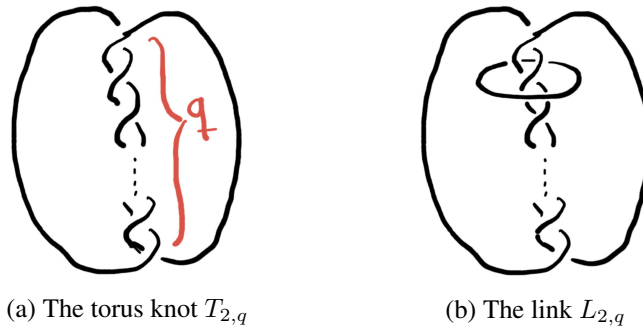


Figure 1