Exercise 1.
Are the left-handed and right-handed trefoils isotopic?

Exercise 2.
Does the Jones polynomial of a knot depend on its orientation? What about links?

Exercise 3.
The HOMFLY polynomial of an oriented link L is a 2-variable Laurent polynomial $H_L(t, z)$ which is invariant under isotopies, satisfies the skein relation

$$t^{-1}H_{L_+}(t, z) - t\, H_{L_-}(t, z) = z\, H_{L_0}(t, z)$$

and $H_U(t, z) = 1$ for the unknot U. Verify that the HOMFLY polynomial generalizes the Jones polynomial. Compute the HOMFLY polynomial of the trefoil and the figure-eight knot.

Exercise 4.
A Seifert surface of an oriented link is a compact connected oriented surface embedded in $\mathbb{R}^3$ whose boundary is the link.
a. Prove that every oriented link has a Seifert surface.
   Hint: smooth the crossings of a connected diagram of the link to obtain disjoints loops which bounds disks that are then connected by bands.
b. Find Seifert surfaces of the trefoil and the figure-eight knot.