MATH 495: KNOT THEORY, HOMEWORK 1

EQUIVALENCE OF KNOTS

Due at start of class, Tuesday, 2/11

Problems (to turn in).

(1) Show that the trefoil can be deformed so that its (non-regular projection) has exactly one multiple point. Is this true for all knots?
(2) Let P be a regular knot projection. Describe how to construct and unknot with projection P.
(3) Complete the proof that colorability is a knot invariant by showing that colorability is preserved under the R3 Reidermeister move.
(4) Recall the definitions of $(2, n)$ torus knot and n-twisted double of the unknot from class. Find the values of n such that the $(2, n)$ torus knot is colorable. Also, find the values of n such that the n-twisted double of the unknot is colorable.