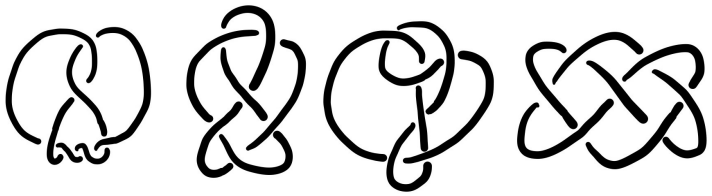
Last meeting we learned that a knot diagram is *colorable* if we can color each arc one of three colors, according to the following rules:

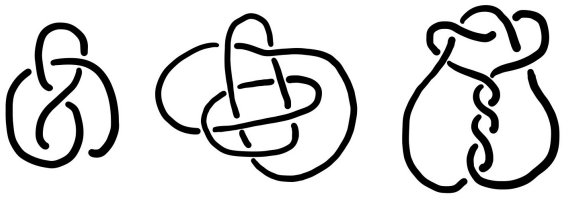
(1) At least two colors must be used.

(2) At every crossing, either all three arcs must be the same color, or all three must be different colors.

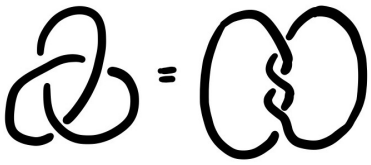
Problem 1. (This is the same problem we did at the end of class, so you may have finished this one already.) Determine whether the following knot diagrams are colorable. There is an extra page at the end with copies of these diagrams that you can print out if you would like.



Problem 2. Determine whether the following knot diagrams are colorable. There is an extra page at the end with copies of these diagrams that you can print out if you would like.



Problem 3. In class we convinced ourselves that these two diagrams both represent the trefoil knot. Draw a series of pictures that shows how you could change one into the other. (Hint: do this with string, and then draw what happens at various stages as you move the string.)



Problem 4. Draw a knot diagram via the following process: start drawing a curve, but whenever you meet a part that you drew previously, always go under. That is, break the curve and continue drawing on the other side of the part you drew previously. This process will always result in a diagram of the same knot. Which knot, and why?