

BMT 2025 Online Power Round Submission Sheet



Please fill out your team ID (3 digits), team name, and problem number.

Team ID
141

Team Name
Cardiff Maths Dragons

Problem #
2.7

Answer

Say that we have two knots, A and B such that A and B are tricolorable.

Let us color A with three colors, which we will call 1, 2 and 3, ensuring that the strand which we are to remove the arc from during composition is colored with color 3.

Color B, also with colors 1, 2 and 3, in a way such that the strand which you are to remove the arc from during composition is also colored with color 3.

In the composition $A \# B$, the two new strands can be colored with color 3. This will make them 'behave' the same as the two original strands on each knot diagram. That is, at each cross that the original strands were joined to, they are the same colour and hence make no difference to the conditions that are needed for tricolorability.

Q.E.D.

