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A *3-tangle*  $T$  is the disjoint union of 3 properly embedded arcs in the unit 3-ball and it is called *rational* if there is a homeomorphism of pairs from  $(B^3, T)$  to  $(D^2 \times I, \{x_1, x_2, x_3\} \times I)$ , where  $\{x_1, x_2, x_3\} \times I$  is a trivial tangle. Two rational 3-tangles  $T$  and  $T'$  are isotopic if there is an orientation-preserving self-homeomorphism  $h : (B^3, T) \rightarrow (B^3, T')$  that is the identity map on the boundary. In this paper, we give an algorithm to check whether two rational 3-tangles are isotopic or not by using a modified version of Dehn's method for classifying simple closed curve on surfaces. (Received September 11, 2012)