

**Comprehension questions**

PROBLEM 32.1. *Take an icosahedron and remove one of the triangles, leaving the remaining 19. In the resulting complex, take a loop of length 3 that goes around the triangle you removed. Show, by an explicit sequence of moves, that this loop is homotopic to a constant loop. (So that I can make sense of your answer, you'll need to include a picture of the icosahedron with the vertices numbered, and the missing triangle marked.)*

PROBLEM 32.2. *Reversing a loop means passing from  $(a_0, a_1, \dots, a_m)$  to  $(a_m, a_{m-1}, \dots, a_0)$ . Give an example of a loop which is not homotopic to the reverse loop. (It is not enough to argue intuitively, I'd like to see a solid reason why they are not homotopic.)*

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