

1. Prove or disprove: the topological spaces  $[0, 1]$  and  $(0, 1)$  are homeomorphic.
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6. Prove or disprove: the topological spaces  $[0, 1)$  and  $(0, 1]$  are homeomorphic.
7. Does there exist any function  $f : [0, 1] \rightarrow (0, 1)$  such that  $f$  is continuous and onto?
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12. Does there exist any function  $f : (0, 1] \rightarrow (0, 1)$  such that  $f$  is continuous and onto?
13. Does there exist any function  $f : (0, 1] \rightarrow [0, 1)$  such that  $f$  is continuous and onto?
14. Does there exist a continuous bijection from  $[0, 1]$  to  $(0, 1)$ ?

15. Does there exist a continuous bijection from  $[0, 1]$  to  $[0, 1)$ ?
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