MATH W4051 PROBLEM SET 9
DUE NOVEMBER 24, 2009.

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(1) Munkres 74.1
(2) Munkres 74.6
(3) Munkres 75.3
(4) Munkres 53.4
(5) Munkres 53.5
(6) Munkres 54.1
(7) Munkres 54.5
(8) A group G is *finitely presented* if $G \cong \langle a_1, \dots, a_n \mid r_1, \dots, r_m \rangle$ for some n and words $r_1, \dots, r_m$ in $a_1, \dots, a_n$. Prove that for any finitely presented group G there is a path-connected space X so that $\pi_1(X) \cong G$.

   (Hint: take a bouquet of circles $\bigvee_{i=1}^{n} S^1$, one for each generator, and then glue on disks according to the relations. You might find it easier to glue on the disks one at a time, and use induction.)

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