(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 $G \cong \langle a_1, \ldots, a_n \mid r_1, \ldots, r_m \rangle$ for some $n$ and words $r_1, \ldots, r_m$ in $a_1, \ldots, a_n$. 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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