between S^n and $\mathbb{R}^n$ for $n > 1$, therefore one has to use here other ways to translate topological problems into algebraic ones. One of the possible concepts is given by higher dimensional homotopy groups $\pi_n(X,x_o)$ based on homotopy classes of maps $c : E^n \to X$ with $c(S^{n-1}) = \{x_o\}$. Then we have $\pi_n(S^n) = \mathbb{Z}$ and $\pi_n(E^{n+1}) = 0$ and $\pi_n(\mathbb{R}^n) = 0$, and this implies the following generalizations of Cor. 1 and 2 on pp. 18 and 19:

No retraction-theorem: There exists no continuous map $f : E^{n+1} \to S^n$ with $\forall\, x \in S^n \;\; f(x) = x \quad (n = 0,1,\ldots)$

Brower fixed point theorem: Each continuous map $f : E^n \to E^n$ has at least one fixed point $x \in E^n$ (i.e. $f(x) = x$)

There are still other tools in algebraic topology which allow to prove results like $\mathbb{R}^n \not\approx \mathbb{R}^m$ for $n \neq m$; and many, many, many other theorems about topological spaces and continuous maps.

Appendix 1: Solutions of the problems of the first hourly.

1). Prove that each subspace of a Hausdorff space is Hausdorff.

Let X be a Hausdorff space and $A \subset X$. We have to show that any two different points x_1 and x_2 in A can be separated by disjoint neighborhoods in A. Since $x_1, x_2 \in X$ we have open subsets U_{x_1} and U_{x_2} in X with $x_1 \in U_{x_1}$ and $x_2 \in U_{x_2}$ and $U_{x_1} \cap U_{x_2} = \emptyset$. Then $V_{x_1} = U_{x_1} \cap A$ and $V_{x_2} = U_{x_2} \cap A$ are open in A, $x_1 \in V_{x_1}$, $x_2 \in V_{x_2}$ and we have clearly $V_{x_1} \cap V_{x_2} = \emptyset$. V_{x_1} and V_{x_2} are the required neighborhoods. Hence A is Hausdorff.