1. Munkres 26.1

2. Munkres 26.12

3. Munkres 28.3

4. Munkres 28.6

5. Munkres 29.3

6. Show that if p, q are elements of the interior of the closed unit ball

$$\mathbb{B}^n = \{x \in \mathbb{R}^n : |x| \leq 1\},$$

then there is a homeomorphism $\phi : \mathbb{B}^n \to \mathbb{B}^n$ such that $\phi(p) = q$ and such that $\phi(x) = x$ for every x with $|x| = 1$. This problem is a little tricky; be as rigorous as you can be without sweating the details. Munkres Theorem 26.6 will be handy.