1.4. Give an example of a compact space $X$ and a map $f : X \to X$ such that

$$\Omega(f|\Omega) \neq \Omega(f).$$

1.5. Suppose that $X$ is a compact space and $f : X \to X$ is a homeomorphism. If $U$ is a neighborhood of $\Omega(f)$ and $x \in X$, show that there exists an integer $N$ such that $f^n(x) \in U$ for all $n \geq N$.

1.6. Let $f : \mathbb{R} \to \mathbb{R}$ be given by $f(x) = x/2$ and $g : \mathbb{R} \to \mathbb{R}$ be given by $g(x) = x/3$. Show that any topological conjugacy between $f$ and $g$ cannot be a Lipschitz homeomorphism. (A Lipschitz homeomorphism $h$ is a homeomorphism for which both $h$ and $h^{-1}$ are Lipschitz maps.)

1.7. Robinson 2.21 (p. 62)

1.8. Robinson 2.22 (p. 62—assume that $a \neq 0$)

1.9. Robinson 2.25 (p. 62)