9.5, 9.6, 9.12, 9.14

10.6, 10.8, 10.10, 10.12

Extra question (will be graded).

If \( s_1 = \sqrt{2} \) and

\[
s_{n+1} = \sqrt{2 + \sqrt{s_n}}
\]

show that \( s_n < 2 \) for all \( n \), that \( s_n \) converges, and that its limit is less than 2.