1. (This problem assumes that you already know about the function $e^x$ and its properties) Let $f : \mathbb{R} \rightarrow \mathbb{R}$ be the function $f(x) = x + e^x$. Prove that $f$ is strictly increasing and hence its inverse $f^{-1}$ exists. Find the derivative of $f^{-1}$ at 1.

2. Problems 7 and 10 in Section 4.2.

3. Problems 11,14,15,16 and 19 in Section 4.3

4. Problems 4,5 and 7 in Section 4.4.