Exercise 1. Let $n \in \mathbb{N}$.

   a. Show that the number of terminal zeros in the decimal expansion of $n!$ is given by

$$\sum_{m=1}^{\infty} \left[\frac{n}{5^m} \right].$$

   b. Determine the number of terminal zeros in the decimal expansion of $1000!$.

Exercise 2. Textbook exercise 4.6.

Exercise 3. Textbook exercise 4.12.

Exercise 4. Textbook exercises 4.13, 4.14.