1. Let $\theta : \mathscr{P}(\mathbb{Z}) \to \mathscr{P}(\mathbb{Z})$ be defined as $\theta(X) = \overline{X}$. Explain your answers to the following questions.

   (a) Is θ injective?

   (b) Is θ surjective?

   (c) Is θ bijective?

2. This question concerns functions $f : \{A, B, C, D, E, F, G\} \to \{1, 2, 3, 4, 5, 6, 7\}$.

   (a) How many such functions are there?

   (b) How many of these functions are injective?