Exercise 44. Let $f : \mathbb{R} \to \mathbb{R}$ be given by $f(x) = x^2 - 6x + 11$. Show that $\text{Im}(f) = [2, \infty)$.

Exercise 45. Let A be a set and let $g : \mathcal{P}(A) \to \mathcal{P}(A)$ be defined by $g(X) = A - X$. Find, with proof, $\text{Im}(g)$.

Exercise 46. Let $h : A \to B$ be a function and let $R = \{(x, y) \mid h(x) = h(y)\} \subseteq A^2$. Show that R is an equivalence relation on A.