Extra Credit

(a) Show that if $\emptyset \neq A \subset B$, then there exists a surjection $f : B \to A$.
(b) Show that for all sets $X$, $\mathcal{P}(X) \not\subset X$; as usual, we denoted by $\mathcal{P}(X)$ the power set associated to the set $X$.

*Hint:* For part (b), use the statement of Problem 2 in Exam 1.