Two functions $f, g : \mathbb{R} \to \mathbb{R}$ commute if $f(g(x)) = g(f(x))$ holds for every $x \in \mathbb{R}$.

(1) Show that for any $g : \mathbb{R} \to \mathbb{R}$ there is a function $f$, which is not the identity function, that commutes with $g$.

(2) Show that there exist two functions $g, h : \mathbb{R} \to \mathbb{R}$ such that any function $f$ that commutes with both $g$ and $h$ must be the identity function.