O, I Think I Understand Asymptotics Now

Let $f, g, h$ be functions from $\mathbb{N}$ to $\mathbb{N}$. Prove or disprove the following:

(a) If $f \in O(g)$ and $g \in O(h)$, then $f \in O(h)$

(b) If $f \in O(g)$, then $g \in O(f)$

(c) For all $k \in \mathbb{R}^+$, $\log(n) \in O(n^k)$.

Odd-Paz

State and prove a divide-and-conquer procedure for proportional cake cutting between any number of players. (The Even-Paz algorithm as described in lecture is an excellent starting point.)