1. Evaluate $\lim_{x\to 0} \dfrac{\sin(x^3)}{\sin^3(x)}$ in two ways.

   (a) First, use L'Hospital's rule. You may have to apply it more than once. Don't forget to stop once you reach a form which is not indeterminate.

   (b) Second, use the identity $\lim_{u\to 0} \dfrac{\sin(u)}{u} = 1$ with $u = x$ and $u = x^3$.
   (Note that $x^3 \to 0$ exactly when $x \to 0$.)