Exercise 1 *You are given the following information:*

(i) $\lim_{x \to 1} f(x) = 0$

(ii) $\lim_{x \to 1} g(x) = 0$

(iii) $\lim_{x \to 1} \dfrac{f(x)}{g(x)} = 2$

What can be said about the relative sizes of $f(x)$ and $g(x)$ as x approaches 1?

Multiple Choice:

(a) *As x is near 1, both $f(x)$ and $g(x)$ are approximately 0, but nothing else.*

(b) *As x is near 1, both $f(x)$ and $g(x)$ are approximately 0, but $f(x)$ is approximately $2 \cdot g(x)$.* ✓

(c) *Nothing.*

(d) *There is a removable discontinuity in $\dfrac{f(x)}{g(x)}$ at $x = 1$.*