

Part I (due at the beginning of class Tuesday, September 30)

Try problem 19 on the Functions and Limits handout and think about this question: True or False: at some time since you were born, you were exactly π feet tall. (Read the “you” here as you personally.)

Part II: Problems (due at the beginning of class Tuesday, September 30)

1. For each of the following, give an explained example of two functions $f(x)$ and $g(x)$ and a value a (for these, a can be either finite or infinite) that satisfy the given criteria or explain why such an example is not possible to give.

(a) $\lim_{x \rightarrow a} f(x) = 0$, $\lim_{x \rightarrow a} g(x) = \infty$, and $\lim_{x \rightarrow a} (f(x)g(x)) = 0$

(b) $\lim_{x \rightarrow a} f(x) = 0$, $\lim_{x \rightarrow a} g(x) = \infty$, and $\lim_{x \rightarrow a} (f(x)g(x)) = 1$

(c) $\lim_{x \rightarrow a} f(x) = 0$, $\lim_{x \rightarrow a} g(x) = \infty$, and $\lim_{x \rightarrow a} (f(x)g(x)) = \infty$