1. Write $|x|$ as a piecewise function. Find $\lim_{x \to 0} |x|$.

2. Write $\frac{|x|}{x}$ as a piecewise function. Find $\lim_{x \to 0} \frac{|x|}{x}$.

3. Write $\frac{|x-1|}{x}$ as a piecewise function. Where are the “interesting” parts of this function? Explain.

4. Explain the important difference between these two problems:

$$\lim_{x \to 1} \frac{\sqrt{x} - 1}{x - 1}$$

$$\lim_{x \to 1} \frac{\sqrt{x} + 1}{x - 1}$$