# 1 | **Practice Problems**

The relevant questions can be found here.

1. One should use a one-sided limit, more specifically a right-hand limit because $sqrt(x)$ is only defined for $x \geq 0$.
   $\lim_{x \to 0^+} \sqrt{x} = 0$
2. One should use a one-sided limit because $\frac{1}{x+1}$ has an infinite discontinuity with asymptotes at $x = -1$. Either side will work. $\lim_{x \to 0^+} \frac{1}{x+1} = \infty$ $\lim_{x \to 0^-} \frac{1}{x+1} = -\infty$
3. One should use a two-sided limit because $\frac{1}{(x-1)^4}$ goes to infinity as $x$ tends toward one from either side due to its even asymptote.
   $\lim_{x \to 1} \frac{1}{(x-1)^4} = \infty$
4. One should use a two-sided limit because $|sin(x)|$ is continuous. $\lim_{x \to 1} |sin(x)| = 0$
5. One should use a one-sided limit as the function $\frac{|x|}{x}$ has a jump discontinuity at $x = 0$ and the left and right hand limits are not equal. Either side will work. $\lim_{x \to 0^+} \frac{|x|}{x} = 1$ $\lim_{x \to 0^-} \frac{|x|}{x} = -1$