



1. Use the figure above, which represents the graph of the function $h(x)$, to evaluate the following limits.

- (a) $\lim_{x \rightarrow 2} h(x) = 2$
 (b) $\lim_{x \rightarrow 3^-} h(x) = 2.5$ (or so)
 (c) $\lim_{x \rightarrow 5^-} h(x) = -\infty$
 (d) $\lim_{x \rightarrow 5} h(x)$ DNE b/c $\lim_{x \rightarrow 5^-} = \infty$

2. Let $f(x) = x^2 - 1$ and $g(x) = x + 2$. Evaluate each of the limits below using the limit laws you have learned, or say why the laws do not allow you to evaluate a particular limit.

(a) $\lim_{x \rightarrow 1} (f/g)$

(b) $\lim_{x \rightarrow 1} (g/f)$

(a) $f/g = \frac{x^2 - 1}{x + 2} \rightarrow \frac{1^2 - 1}{1 + 2} = \frac{0}{3} = 0$ as $x \rightarrow 1$

b/c f/g is a rational function and $x = 1$ is in the domain.

(b) $g/f = \frac{x + 2}{x^2 - 1}$. This limit (which is infinity) cannot be evaluated using our rules b/c 1 is not in the domain.