2.2/2.3 Supplementary Material

1. Evaluate
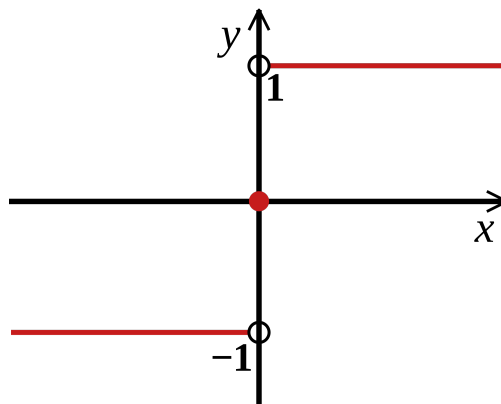$$\text{(a)} \quad \lim_{t \to 0} \frac{t^2 - 1}{7}, \qquad \text{(b)} \quad \lim_{x \to 1} \log_2(x)$$

2. Find the value of the limit $\lim_{x \to 0}(x^2 + 1000x)$. Do you get the right answer by plugging in small values of x like $x = 0.01$?

3. Evaluate
$$\text{(a)} \quad \lim_{x \to 5} \frac{x - 5}{25 - x^2}, \qquad \text{(b)} \quad \lim_{s \to 0} \frac{s}{\sqrt{s}}$$

4. For the signum function, which we'll call $f(x)$ and which is graphed below, evaluate $\lim_{x \to 0^+} f(x)$ and $\lim_{x \to 0^-} f(x)$. Do either of these match the value of $f(0)$?

5. Does $\lim_{x \to 0} \frac{1}{x}$ exist? What about $\lim_{x \to 0^+} \frac{1}{x}$ or $\lim_{x \to 0^-} \frac{1}{x}$?