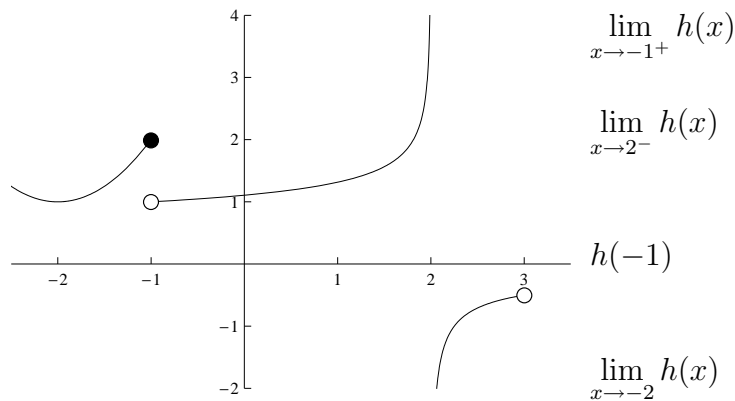


1. (4 points) For the plot of  $h(x)$  shown below, indicate whether or not each of the following quantities can be evaluated. If they can be evaluated, compute their values. If they cannot be evaluated, explain why.



$$\lim_{x \rightarrow -1^+} h(x)$$

$$\lim_{x \rightarrow 2^-} h(x)$$

$$h(-1)$$

$$\lim_{x \rightarrow -2} h(x)$$

2. (9 points) Evaluate the following limits, or explicitly state that they do not exist and explain why they cannot be evaluated.

(a) (3 points)  $\lim_{s \rightarrow 2} \sqrt{2 - s}$

(b) (3 points)  $\lim_{x \rightarrow 1^+} \frac{x^2 - 2x}{x^3 + x^2 + 1}$

(c) (3 points)  $\lim_{u \rightarrow 3} \frac{u - 3}{u^2 - 4u + 3}$

3. (3 points) Write the formal definition of the statement " $\lim_{x \rightarrow a^+} f(x) = -\infty$ ".

4. (4 points) Using epsilon-delta methods, prove that  $\lim_{x \rightarrow 4} -4x + 2 = -14$ .

5. (2 point bonus) Show that the equation  $x + 2 = 2x^6$  has at least two solutions.