



Problem 1: Use the plot of $f(x)$ above to answer the following questions:

(a) $\lim_{x \rightarrow 5^+} f(x) =$

(g) $\lim_{x \rightarrow 2} f(x) =$

(b) $\lim_{x \rightarrow 5^-} f(x) =$

(h) $f(2) =$

(c) $\lim_{x \rightarrow 5} f(x) =$

(i) $\lim_{x \rightarrow -1^+} f(x) =$

(d) $f(5) =$

(j) $\lim_{x \rightarrow -1^-} f(x) =$

(e) $\lim_{x \rightarrow 2^+} f(x) =$

(k) $\lim_{x \rightarrow -1} f(x) =$

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

(l) $f(-1) =$

Problem 2: Evaluate the following limits (you may *not* use l'Hôpital's Rule):

$$\lim_{x \rightarrow 0} \frac{x}{\sqrt{x+4} - 2} =$$

$$\lim_{x \rightarrow -3} \frac{x^2 + x - 6}{x^2 - 2x - 15} =$$

$$\lim_{x \rightarrow 0} \frac{\tan(5x)}{x} =$$

Problem 3: Evaluate the limit $\lim_{x \rightarrow 0} \frac{\frac{1}{x+2} - \frac{1}{2}}{x}$. Recognize the limit as the derivative of a particular function and check your answer using differentiation.