

Problem 1: (10 points) If it exists, find the limit. Use the symbols ∞ or $-\infty$ as appropriate.

a) $\lim_{t \rightarrow 2} \frac{t^2 - 4}{8 - t^3}$

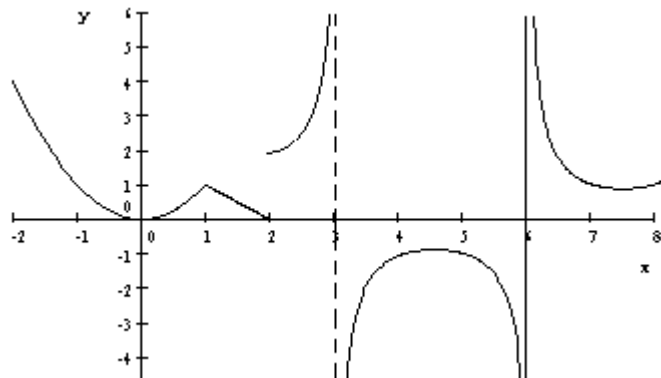
b) $\lim_{x \rightarrow 0^-} \left(\frac{1}{x} - \frac{1}{|x|} \right)$

c) $\lim_{x \rightarrow 0^+} \left(\frac{1}{x} - \frac{1}{|x|} \right)$

d) $\lim_{x \rightarrow 1} \frac{\sqrt{x} - 1}{\sqrt{x + 3} - 2}$

e) $\lim_{x \rightarrow 0^+} x \cdot e^{\sin\left(\frac{1}{x}\right)}$

Problem 2: (5 points) consider the graph of the function $f(x)$ whose graph is sketched below. Determine the limit if it exists. (Use ∞ and $-\infty$ when appropriate)



a. $\lim_{x \rightarrow 1} f(x) =$

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

c. $\lim_{x \rightarrow 3^-} f(x) =$

d. $\lim_{x \rightarrow 0^+} \frac{f(x)}{x - 1} =$

e. $\lim_{x \rightarrow 6^-} f(x) =$

Problem 1: (15 points) If it exists, find the limit. Use the symbols ∞ or $-\infty$ as appropriate.

a) $\lim_{t \rightarrow 3} \frac{t^2 - 9}{27 - t^3}$

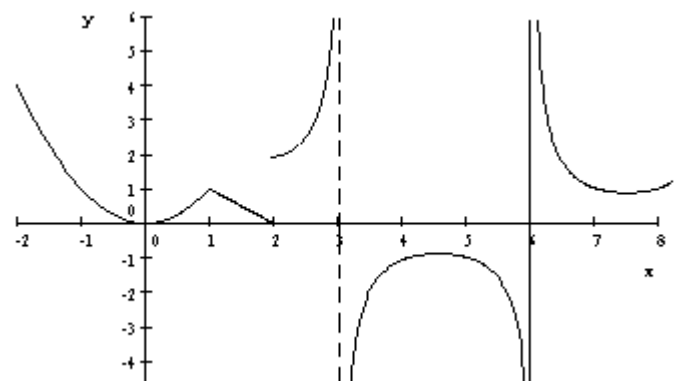
b) $\lim_{x \rightarrow 0^-} \left(\frac{1}{|x|} - \frac{1}{x} \right)$

c) $\lim_{x \rightarrow 0^+} \left(\frac{1}{|x|} - \frac{1}{x} \right)$

d) $\lim_{x \rightarrow 4} \frac{\sqrt{x} - 2}{\sqrt{x + 5} - 3}$

e) $\lim_{x \rightarrow 0^-} x \cdot e^{\sin\left(\frac{1}{x}\right)}$

Problem 2: (5 points) consider the graph of the function $f(x)$ whose graph is sketched below. Determine the limit if it exists. (Use ∞ and $-\infty$ when appropriate)



a. $\lim_{x \rightarrow 0} f(x) =$

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

c. $\lim_{x \rightarrow 3^+} f(x) =$

d. $\lim_{x \rightarrow 0^-} \frac{f(x)}{x - 1} =$

e. $\lim_{x \rightarrow 6^+} f(x) =$