MTH 251Z Lab
Limits

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Prompts

1. The graph of $y = g(t)$ is given below. Use the graph to find the following limits.

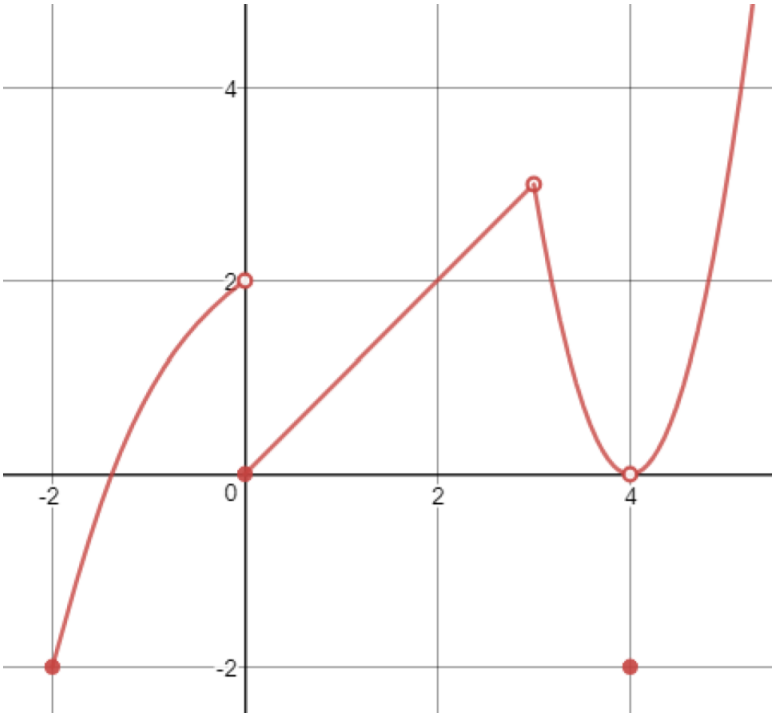

Figure 1: Graph of $y = g(t)$

(a) $\lim_{t \to 0^-} g(t)$

(b) $\lim_{t \to 0^+} g(t)$

(c) $\lim_{t \to 0} g(t)$

(d) $\lim_{t \to 3^-} g(t)$

(e) $\lim_{t \to 3^+} g(t)$

(f) $\lim_{t \to 3} g(t)$

(g) $\lim_{t \to 4^-} g(t)$

(h) $\lim_{t \to 4^+} g(t)$

(i) $\lim_{t \to 4} g(t)$

2. Use the strategy introduced in class to guess the following limits. Show all work to support your conclusion.

   (a) $\lim_{x\to 2}\left(x^3 - 2^x - \sqrt{2x}\right)$ (b) $\lim_{x\to 5}\left(\cos\left(\frac{\pi}{2}x\right) + 1\right)$ (c) $\lim_{x\to 1}\frac{x^2-3x+2}{2x^2+3x-5}$

3. Use the strategy introduced in class to guess the following limits. Show all work to support your conclusion.

   (a) $\lim_{x\to 2^-}\frac{2x^2+x-10}{|x-2|}$ (b) $\lim_{x\to 2^+}\frac{2x^2+x-10}{|x-2|}$ (c) $\lim_{x\to 2}\frac{2x^2+x-10}{|x-2|}$

4. Use your knowledge of the graphs of the following functions to evaluate the following limits.

   (a) $\lim_{x\to 0^+}\ln x$ (b) $\lim_{x\to \frac{\pi}{2}^-}\tan x$ (c) $\lim_{x\to \frac{\pi}{2}}\tan x$ (d) $\lim_{x\to 0}\frac{1}{x^2}$