

6. Sketch the graph of

$$f(x) = \begin{cases} x^3 - 1 & \text{if } x < 0 \\ 0 & \text{if } x = 0 \\ \sqrt{x+1} - 2 & \text{if } x > 0 \end{cases}$$

and identify each limit.

(a)  $\lim_{x \rightarrow 0^-} f(x)$

(b)  $\lim_{x \rightarrow 0^+} f(x)$

(c)  $\lim_{x \rightarrow 0} f(x)$

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

(e)  $\lim_{x \rightarrow 3} f(x)$