Exercises

1. **Find the limit if it exists:**

   (a) $\lim_{x \to 4^+} \sqrt{x+5}$

   (b) $\lim_{t \to 0^-} \dfrac{t}{|t|}$

   (c) $\lim_{y \to 2} \dfrac{y-2}{y^2-4}$

   (d) $\lim_{t \to \pi} \tan\left(\dfrac{t}{2}\right)$

   (e) $\lim_{x \to 9} \log_x(y) = 4$

   (f) $\lim_{x \to 0} \ln(x)$

2. **Find the limit at ∞ if it exists:**

   (a) $\lim_{q \to \infty} \dfrac{q^2}{(q+2)(q-1)}$

   (b) $\lim_{t \to -\infty} e^t$

   (c) $\lim_{x \to \infty} (-1)^x$

   (d) $\lim_{t \to infty} \cos\left(\dfrac{1}{t}\right)$

   (e) $\lim_{n \to \infty} f(n)$ where $f(n) = \dfrac{1}{1} + \dfrac{1}{2} + \dfrac{1}{4} + \cdots + \dfrac{1}{2^n}$