

Infinite Limits

p. 128 - 137 (2.5)

12

Graphically, an *infinite limit* increases/decreases without bound at a vertical asymptote.

Analytically, direct substitution yields a 0 in the denominator (no common factor or indeterminate form).

Numerically, substitute a decimal number approaching the limit to see if the y-values are approaching - or + infinity.

Describing the behavior to the left and right of a vertical asymptote is useful in graphing that particular function.

Find $\lim_{x \rightarrow 1^+} f(x)$ and $\lim_{x \rightarrow 1^-} f(x)$ for 1 - 2.



1. $y = \frac{x^2 + 5x}{x - 1}$



2. $f(x) = \frac{1}{x - 1}^4$



3. a) Find $\lim_{x \rightarrow -\pi/2^-} \tan x$ b) Find $\lim_{x \rightarrow -\pi/2^+} \tan x$