

Sections 2.3 and 2.5

1. Evaluate the limit, if it exists.

a) $\lim_{x \rightarrow 2} \frac{x^2 - 4}{x^2 + x - 6}$

b) $\lim_{x \rightarrow 0} \frac{\sqrt{x^2 + 9} - 3}{x^2}$

c) $\lim_{x \rightarrow \pi} \tan(x + \sin x)$

2. For what value of the constant c is the function f continuous on $(-\infty, \infty)$?

$$f(x) = \begin{cases} cx^2 + 4x & : x < 3 \\ 2x - c & : x \geq 3 \end{cases}$$