

MAT125, Paper Homework Lim

1. Calculate

$$\lim_{x \rightarrow 0} \left(\frac{1}{x} - \frac{1}{x^2 + x} \right),$$

if it exists. (If the limit doesn't exist, explain.)

2. Let $F(x) = \frac{x^2 - 4}{|x - 2|}$.

(a) Compute $\lim_{x \rightarrow 2^+} F(x)$ and $\lim_{x \rightarrow 2^-} F(x)$.

(b) Does $\lim_{x \rightarrow 2} F(x)$ exist? Justify your answer, and sketch the graph of $F(x)$.