MAT125, Paper Homework 2

1. Calculate
$$\lim_{x\to 0}\left(\frac{1}{x}-\frac{1}{x^2+x}\right),$$
if it exists. (If the limit doesn't exist, explain.)

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

   (a) Compute $\lim\limits_{x\to 2^+} F(x)$ and $\lim\limits_{x\to 2^-} F(x)$.

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