Exercise 26

Evaluate the limit, if it exists.

$$\lim_{t\to 0}\left(\frac{1}{t}-\frac{1}{t^2+t}\right)$$

Solution

Rewrite the function, cancel the common factors, and then evaluate the limit.

$$\lim_{t\to 0}\left(\frac{1}{t}-\frac{1}{t^2+t}\right)=\lim_{t\to 0}\frac{(t^2+t)-t}{t(t^2+t)}=\lim_{t\to 0}\frac{t^2}{t^2(t+1)}=\lim_{t\to 0}\frac{1}{t+1}=\frac{1}{1}=1$$