

Quiz 3 MTH 2294 Fall 2023

$$\lim_{t \rightarrow 2} \frac{t^2 - t - 2}{t^2 + 3t - 10} \xrightarrow{\text{set } t=2} \frac{2^2 - 2 - 2}{2^2 + 3(2) - 10} = \frac{4 - 4}{4 + 6 - 10} = \frac{0}{0}$$

more work
to do!

So, look at

$$\frac{t^2 - t - 2}{t^2 + 3t - 10} = \frac{(t-2)(t+1)}{(t-2)(t+5)} = \frac{t+1}{t+5}$$

Thus,

$$\lim_{t \rightarrow 2} \frac{t^2 - t - 2}{t^2 + 3t - 10} = \lim_{t \rightarrow 2} \frac{t+1}{t+5} = \frac{2+1}{2+5} = \frac{3}{7}$$