Quiz 4

Evaluate

$$\lim_{h \to 0} \frac{\frac{1}{4+h} - \frac{1}{4}}{h}.$$  

Show all your work.

Solution. Find a common denominator and simplify to get

$$\lim_{h \to 0} \frac{\frac{1}{4+h} - \frac{1}{4}}{h} = \lim_{h \to 0} \frac{4 - (4 + h)}{h \cdot 4(4 + h)}$$

which is just \( \lim_{h \to 0} \frac{-1}{4(4+h)} = -1/16. \)