

Name: SOLUTIONS

Quiz #2 - September 12, 2007

1. Complete the following definition: A function f is **continuous at a number** a if ...

$$\lim_{x \rightarrow a} f(x) = f(a).$$

2. Evaluate

$$\lim_{h \rightarrow 0} \left(\frac{\sqrt{1+h} - 1}{h} \right)$$

Multiply the numerator and denominator by $\sqrt{1+h} + 1$ to get:

$$\begin{aligned} \lim_{h \rightarrow 0} \left(\frac{\sqrt{1+h} - 1}{h} \right) &= \lim_{h \rightarrow 0} \left(\frac{1+h-1}{h(\sqrt{1+h}+1)} \right) \\ &= \lim_{h \rightarrow 0} \left(\frac{1}{\sqrt{1+h}+1} \right) \\ &= 1/2 \end{aligned}$$