

LAST NAME:

FIRST NAME:

KEY

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Math 008B - Spring 2016

Quiz 5: Wednesday May 18, 2016

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1. (5 points) Evaluate the following limit:

$$\lim_{x \rightarrow 0} \frac{e^{2x} - 1}{\sin(4x)}$$

$$\lim_{x \rightarrow 0} \frac{e^{2x} - 1}{\sin(4x)} = \frac{e^0 - 1}{\sin(0)} = \frac{0}{0} \text{ indeterminate}$$

$$\begin{aligned} L'H \\ = \lim_{x \rightarrow 0} \frac{2e^{2x}}{4\cos(4x)} &= \frac{2}{4} = \boxed{\frac{1}{2}} \end{aligned}$$

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Please show all work.

2. (5 points) Evaluate the following limit:

$$\lim_{x \rightarrow \infty} \frac{\ln(4x+1)}{3x+1}$$

$$\lim_{x \rightarrow \infty} \frac{\ln(4x+1)}{3x+1} = \frac{\ln(\infty)}{\infty} = \frac{\infty}{\infty} \text{ indeterminate}$$

$$\begin{aligned} L'H &= \lim_{x \rightarrow \infty} \frac{\frac{1}{4x+1} \cdot 4}{3} = \lim_{x \rightarrow \infty} \frac{4}{3(4x+1)} \\ &= \boxed{0} \end{aligned}$$

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Please show all work.