

MATH 1850 Sec 011 and 012  
CALCULUS I  
QUIZ 11  
November 16, 2010

Name (Last, First) \_\_\_\_\_

1. Use L'Hôpital's to find the limit.

$$\lim_{t \rightarrow 0} \frac{\sin t^2}{t}$$

It's of the form  $\frac{0}{0}$ .

$$\lim_{t \rightarrow 0} \frac{\sin t^2}{t} = \lim_{t \rightarrow 0} \frac{2t \cos t^2}{1} = 2 \cdot 0 \cos 0 = 0$$

2. Use L'Hôpital's to find the limit.

$$\lim_{t \rightarrow \infty} \frac{e^t + t^2}{e^t - t}$$

It's of the form  $\frac{\infty}{\infty}$ .

$$\lim_{t \rightarrow \infty} \frac{e^t + t^2}{e^t - t} = \lim_{t \rightarrow \infty} \frac{e^t + 2t}{e^t - 1} = \lim_{t \rightarrow \infty} \frac{e^t + 2}{e^t} = \lim_{t \rightarrow \infty} \frac{e^t}{e^t} = 1$$