quiz 12
math1117.02
u new haven
fri, 25 oct

solution

name: _____

1 (4 points). Evaluate $\lim_{x\to 0} \dfrac{\sin(5x)}{3x}$

2 (4 points). Compute the derivative of $y = e^x(\cos(x) + \sin(x))$

1) $$\lim_{x\to 0} \frac{\sin(5x)}{3x} = \lim_{x\to 0} \frac{\sin(5x)}{5x} \cdot \left(\frac{5}{3}\right)$$

$$= \frac{5}{3}$$

2) $$y' = \frac{d}{dx}(e^x)(\cos(x) + \sin(x)) + e^x \frac{d}{dx}(\cos(x) + \sin(x))$$

$$= e^x(\cos(x) + \sin(x)) + e^x(-\sin(x) + \cos(x))$$

$$= 2e^x \sin(x)$$