

Math 2143 - Brief Calculus with Applications

Quiz #10 - 2008.03.11

Solutions

1. Compute the following limit.

$$\begin{aligned}\lim_{h \rightarrow 0} \frac{\frac{1}{3+h} - \frac{1}{3}}{h} &= \lim_{h \rightarrow 0} \frac{\frac{3-(3+h)}{3(3+h)}}{h} \\ &= \lim_{h \rightarrow 0} \frac{-h}{3(3+h)h} \\ &= \lim_{h \rightarrow 0} \frac{-1}{3(3+h)} \\ &= -\frac{1}{9}\end{aligned}$$

2. Compute the following derivative.

$$\frac{d}{dt} f(g(h(t))) = f'(g(h(t))) \cdot g'(h(t)) \cdot h'(t)$$