

2019/10/14, Calculus Quiz (1), §2.1 ~ §2.5 (可用鉛筆、需計算過程、交回題目卷及答案卷)

- (40%) (a) What is the instantaneous speed at time t_0 ? (b) What is the Sandwich Theorem?
(c) What is the continuity of a function at a point? (d) What is the precise definition of the limit of $f(x)$ as x approaches x_0 is the number L ?
- (20%) Use the precise definition of a limit to show that

$$\lim_{x \rightarrow 1} f(x) = 2 \text{ if } f(x) = \begin{cases} 4 - 2x, & x < 1 \\ 6x - 4, & x \geq 1. \end{cases}$$

- (20%) (a) Find $\lim_{x \rightarrow 0^+} g(x)$ if $\lim_{x \rightarrow 0^+} (4g(x))^{1/3} = 2$. (b) Find $\lim_{x \rightarrow \sqrt{5}} g(x)$ if $\lim_{x \rightarrow \sqrt{5}} \frac{1}{x + g(x)} = 2$.
 - (20%) Find the limits. (a) $\lim_{\theta \rightarrow 3^+} \frac{\lfloor 2\theta \rfloor}{\theta}$ (b) $\lim_{\theta \rightarrow 4^-} (\theta - \lfloor 2\theta \rfloor)$.
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