

(1) [5] Evaluate $\lim_{x \rightarrow 0} \frac{x^2}{1 - \cos(x)}$.

(2) [5] Evaluate $\lim_{x \rightarrow 0^+} (\tan(2x))^x$.

(3) [5] Determine $f(x)$ if

$$f''(x) = 6x + \sin(x), \quad f(0) = 0, \quad f'(0) = 2$$