

Reading Quiz #10

姓名：_____ 系級：_____ 學號：_____ 分數：_____

Read Section 5.3(pages 340-350) and answer the following problems.

1. Find the derivative of the function

$$g(x) = \int_{\tan x}^{x^2} \frac{1}{\sqrt{2+t^4}} dt$$

2. Evaluate the limit by first recognizing the sum as a Riemann sum for a function defined on $[0, 1]$.

(a) $\lim_{n \rightarrow \infty} \sum_{i=1}^n \frac{i^3}{n^4}$

(b) $\lim_{n \rightarrow \infty} \frac{1}{n} \left(\sqrt{\frac{1}{n}} + \sqrt{\frac{2}{n}} + \sqrt{\frac{3}{n}} + \cdots + \sqrt{\frac{n}{n}} \right)$