招 生 學 年 度	九十九	招 生 類 別	轉學招生考試
系 所 班 別	財務金融學系二年級		
科 目	微積分		
注 意 事 項	禁止使用掌上型計算機		

1. (20%，各 10%) The following statements are "Yes" or "No". If your answer is "No", you should establish the counter example to support your answer.
   (1) If the function $f(x)$ has the limit at the point a, then the function $f(x)$ is continuous at the point a.
   (2) If the function $f(x)$ is continuous at the point a, then the function $f(x)$ has the derivative at the point a.

2. (15%) Using the concept of the signs ε and δ, prove that
$$\lim_{x \to 4}(3x - 5) = 7$$

3. (15%) Find the limit. Note: the function [　] is the greatest integer function.
$$\lim_{x \to 3^+}[x^2 + 2x]$$

4. (12%) Find the derivative of the absolute function $|x|$, for $x \neq 0$.

5. (10%) Use the Chain Rule and the Implicit Differentiation to find $\frac{dy}{dx}$ if
$$y^3 + 6y = x^3$$

6. (12%) Determine a and b so that
$$f(x) = a\sqrt{x} + \frac{b}{\sqrt{x}}$$
   has the point (4, 13) as an inflection point.

7. (16%，各 8%) Find the value
   (1) $\frac{d}{dx}\int_{-x}^{x^2}\frac{e^t}{1+t}dt$
   (2) $\int_0^1 xe^{2x}dx$