**臺北巿立教育大學**

**102學年度學士班二、三年級轉學生招生考試試題**

**系 別：**數學系（二年級）

不得使用計算機或任何儀具。

**科 目：**微積分

**考試時間：**90分鐘【8:20−9:50】

**總 分：**100分

* **注意：**不必抄題，作答時請將試題題號及答案依照順序寫在答卷上；**限用藍色或黑色筆作答**，使用其他顏色或鉛筆作答者，所考科目以零分計算。**(於本試題紙上作答者，不予計分。)**

**每題10分，共100分**

1. Give an ,  proof for the statement .
2. Calculate the integral .
3. Let the function  be continuous on  and . Prove that there is a number  such that .
4. Let  for all , and . Show that if , then  converges.
5. Find the volume of the solid bounded above by the surface , below by the -plane, and on the sides by the cylinder .
6. Find the integral: .
7. Find the integral: .
8. Use a triple integral to find the volume of the solid given by .
9. Find  and , given , , , .
10. The table shows some values of the derivative of an unknown function . Complete the table by finding (if possible) the derivative of each transformation of .

(注:請在答案本作答區依格號順序作答，若無法求出請寫「@」符號)

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