考試科目	微積分	所別	圖資所	考試時間	4月2/日(上)(下)午第一節 星期日

1. A company estimates that it can sell 1000 units per week if it sets the unit price at \$ 3.00, but that its weekly sales will rise by 100 units for each 10¢ decrease in price. If x is the number of units sold each week ($x \geq 1000$), find:
   (a) (10%) the price function, $p(x)$
   (b) (10%) the number of units and the corresponding price that will maximize weekly revenue;
   (c) (10%) the maximum weekly revenue.

2. (15%) Find the vertical and horizontal asymptotes of the graph of $y = f(x)$ if
   $f(x) = \dfrac{2x}{x-1}$

3. (15%) Find the number c guaranteed by the Mean Value Theorem for
   $f(x) = 2\sqrt{x}$ on [1,4].

4. (15%) Evaluate $\int_0^1 [x^2 + (x^2+1)^4 x]dx$

5. (a) (15%) Find the equation of the tangent line $x^2y^2 + 3xy = 10y$ at the point (2,1)

   (b) (10%) Find dy/dx : $y = \sqrt[3]{x} + \dfrac{1}{\sqrt[3]{x}}$

備考	試題隨卷繳交

命題委員： （簽章） 91年 3月 29日