

中 華 大 學

九十五學年度二年制在職專班招生入學考試試題紙

學系別：電機工程學系

科目：微積分

共一頁第一頁

本科目可使用計算機*

填充題：請按題號順序只將答案寫在答案卷第一頁，每題十分，計算過程不計分

1. We want to use formal definition of a limit to prove that $\lim_{x \rightarrow 2} (x^2 - 4x + 7) = 3$. Find δ for a given ε .
2. Find Horizontal and vertical asymptotes for the function $f(x) = \frac{x^2}{9 - x^2}$.
3. Find the point-slope equation for the line tangent to the graph of the equation $\sin(xy) = x^2 \cos y$ at the point $(2, \frac{\pi}{2})$.
4. Find the solution of the initial value problem $\frac{dy}{dx} - y = x$, $y(0) = 1$.
5. Write the coefficients corresponding to the x^8 term in the Binomial series of $f(x) = \sqrt{1 - x^2}$.
6. $\int \sin 2t \, dt$
7. $\int \ln x \, dx$
8. $\int \sin^{-1} x \, dx$
9. $\int 2^x \, dx$
10. $\int (\tan^{-1} x)^2 \, dx$