

國立暨南國際大學九十二學年度轉學生入學考試試題

第 2 節微積分通用：(電機系二 331)

(本試題共 / 頁，第 / 頁)

考生注意：1. 依次序作答，只要標明題號，不必抄題。

2. 答案必須寫在答案卷上，否則不予計分，並限以藍黑色筆作答。

3. 試題隨卷繳回。(餘詳詳閱試場規則)

1. (20%) Find $\iint_D 72xy dA$, where D is the region between $y = x$ and $y = x^2$.

2. (20%) Find the equation of the tangent plane to $z = 4x^2y$ at $(1, 3)$.

3. (20%) Find the directional derivative $f(x, y, z) = xy \sin z$ in the direction $\vec{u} = (\frac{1}{\sqrt{2}}, -1, \frac{1}{\sqrt{2}})$ at the point $(2, 1, \frac{\pi}{6})$.

4. (20%) Find the gradient of $f(x, y) = e^{xy}$.

5. (20%) Find a triple iterated integral for the volume inside the cone $z^2 = x^2 + y^2$ bounded by $z = 0$ and $z = 8$.

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