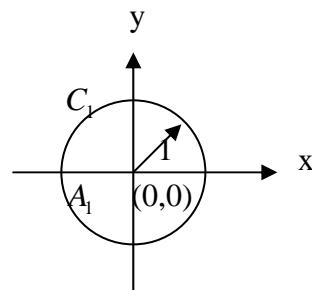


年級：\_\_\_\_\_ 姓名：\_\_\_\_\_ 學號：\_\_\_\_\_

國立台灣海洋大學河海工程學系 2004 工程數學（三）第四次小考

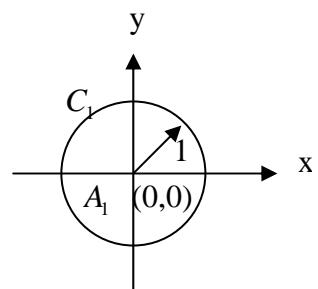
$$1. \oint_C \left( \frac{-y}{x^2 + y^2} dx + \frac{x}{x^2 + y^2} dy \right) = ?$$

where  $C_1$  and  $A_1$  are shown below.



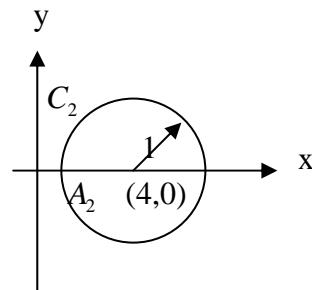
$$2. \iint_A \left[ \frac{\partial}{\partial x} \left( \frac{x}{x^2 + y^2} \right) - \frac{\partial}{\partial y} \left( \frac{-y}{x^2 + y^2} \right) \right] dA = ?$$

where  $C_1$  and  $A_1$  are shown below.



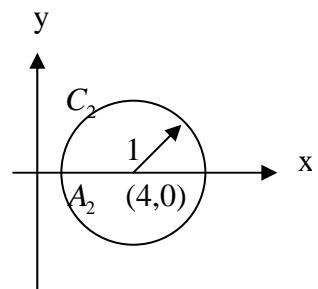
$$3. \oint_C \left( \frac{-y}{x^2 + y^2} dx + \frac{x}{x^2 + y^2} dy \right) = ?$$

where  $C_2$  and  $A_2$  are shown below.



$$4. \iint_A \left[ \frac{\partial}{\partial x} \left( \frac{x}{x^2 + y^2} \right) - \frac{\partial}{\partial y} \left( \frac{-y}{x^2 + y^2} \right) \right] dA = ?$$

where  $C_2$  and  $A_2$  are shown below.



5. Green theorem is ok or not?