MATH 2042 3.0 W
QUIZ N2
20 March'2003

NAME: _____ **STUDENT NUMBER:** _____

This is closed-lectures 6-9 quiz. Show all your work with Maple commands and answers in the space provided. Each exercise 1-6 values 3 points, exercise 7 values 5 points, and exercise 8 values 7 points. This Quiz N2 values 30 points. 1 point is equal to 1 percent of your final mark. Good luck!

1. (3 points) Let $g(x,y) = cos(x) + sin(y)$. Compute a) $\frac{\partial^2 g}{\partial x \partial y}$; b) $\frac{\partial^2 g}{\partial x^2}$.

2. (3 points) Compute $\int_0^{\pi/2} \int_0^{\pi/2} \cos^2(x) \sin(y) dx dy$.

3. (3 points) Graph function

$$f(x) = \begin{cases} \cos(x), & x < \pi, \\ -\cos(x), & x \geq \pi \end{cases}$$

on the interval $[0, 2\pi]$.

4. (3 points) Type a Maple command to plot and label the following function: $f(x) = tan(x)$ on the interval $x \in [-2\pi, 2\pi]$.

5. (3 points) Use **proc**(**x**) command to plot the following function

$$f(x) = \begin{cases} -x^5, & x < 5 \\ x^5, & x \geq 5 \end{cases}$$

on the interval $[0, 8]$.

6. (3 points) Type a Maple command to graph a several level curves of function $f(x, y) = \sin(xy) + \cos(xy)$ on the rectangle $[0, 4\pi] \times [0, 4\pi]$ (do not graph the curves).

7. (5 points) Solve the following DE $\frac{dy(x)}{dx} + y(x) = e^{-x}$ with the initial condition $y(0) = 1$.

8. (7 points) Solve the system of two DEs $dx(t)/dt = 2y(t)$ and $dy(t)/dt = 2x(t) + 4y(t)$ with initial conditions $x(0) = 0, y(0) = 1$.