Prince Sultan university
Department of Mathematics
Major I Exam
Semester I ,2007-2008 Fall(071)
03.11.2007
Math 113-Calculus II

Time Allowed: 90 minutes	
Name:	
ID Number:	

Instructions:

- 1. Answer all the questions.
- 2. Show your work in the spaces provided for each question.

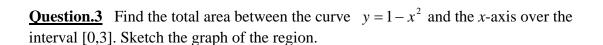
Question	Q.1	Q.2	Q.3	Q.4	Q.5	Q.6	Q.7
Grade							

Question.1 Evaluate the following integrals:

a)
$$\int \frac{2x+4}{\sqrt{2x^2+8x+3}} dx$$

b)
$$\int_{0}^{\frac{\pi}{4}} 4\sin x \cos x dx$$

Question.2 Given the function
$$F(x) = \int_{4}^{\pi} \sqrt{t^2 + 9} dt$$
. Find $F(4), F'(4)$ and $F''(4)$.



Question.4 Use cylindrical shells to find the volume of the solid generated when the region enclosed between $y = \sqrt{x}$, x = 1, x = 4 and the x-axis is revolved about the y-axis.

Question.5 Find the arc length of the graph of $f(x) = x^{\frac{3}{2}} + 1$ for $0 \le x \le 4$.

Question.6 Find the area of the surface that is generated by revolving the portion of the curve $y = x^2$ between x=1 and x=2 about the y-axis.

Question.7 Find the volume of the solid generated when the region between the graphs of the equations $f(x) = \frac{1}{2} + x^2$ and g(x) = x over the interval [0,2] is revolved about the *x*-axis.