

Simon Fraser University

Math 152 Midterm 1  
Dr. Nessim Tariq  
Wednesday February 9, 2005  
8:30 – 9:20 A.M.

Last Name (print): \_\_\_\_\_

First Name (print): \_\_\_\_\_

Student #: \_\_\_\_\_

Signature: \_\_\_\_\_

Instructions:

1. This test consists of 7 questions for a total of 40 marks.
2. You are expected to supply complete solutions to all of the following questions. Be sure to show all of your work and fully justify your answers. Use the backs of the test pages, if necessary, and indicate where the solutions continue.
3. Please place your answers in the boxes indicated for each question.
4. No calculators are allowed. You may leave your answers as arithmetical

expressions e.g.  $\frac{3}{20} - \frac{4}{5} + \sqrt{2} + \pi$ .

Question	1	2	3	4	5	6	7	Total
Score								
Value	6	6	6	5	5	6	6	40

Question 1[6 marks]: Evaluate  $\int_1^2 \frac{2x^2 + x + 1}{x} dx$ .

Answer:

Question 2[6 marks]: Evaluate  $\int_{\frac{2}{\pi}}^{\frac{3}{\pi}} \frac{\sin(\frac{1}{t})}{t^2} dt$ .

Answer:

Question 3 [6 marks]: Evaluate  $\int_{-3}^3 [x^{101} \cos x + \sqrt{9-x^2}] dx$ .

Answer:



Question 4 [5 marks]: If  $F(x) = \int_0^{\sin x} 16t^3 e^{2t} dt$ , find  $F'(\frac{\pi}{6})$ .

Answer:

Question 5 [5 marks]: Approximate  $\int_{\frac{1}{2}}^{\frac{9}{2}} x^2 dx$  by a Riemann sum with a regular partition of four subintervals and with a selection consisting of the midpoint of each subinterval.

Answer:

Question 6 [6 marks]: Find the area in the  $xy$ -plane bounded by the curves  $y = x^4 - 16$  and  $y = 4 - x^2$ .

Answer:

Question 7[6 marks]: Find the volume of revolution generated by rotating the region  $y = \frac{1}{x^2 + 1}$ ,  $y = 0$ ,  $x = 1$ ,  $x = 2$  in the  $xy$ -plane about the  $y$ -axis.

Answer: