

Name \_\_\_\_\_ Class Time \_\_\_\_\_

**MATH 104 - QUIZ # 2**  
**Spring 2003**  
**Due Friday, March 7 at 2PM**  
**Covers Sections 7.6, 8.1, 8.4-8.5 of the textbook**  
**Time: 60 minutes**

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Please show all work. Books, notes, calculators, are not permitted on this quiz. As part of your obligations under the Honor Code, do not discuss this quiz with anyone until after the Friday 2PM deadline.

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WRITE OUT AND SIGN THE PLEDGE:

I pledge my honor that I have not violated the Honor Code during this examination.

1. (10 points) Find  $\int \frac{dx}{(1-x^2)^{3/2}}$

2. (10 points) Find  $\int (\sin 5x \cos 3x + \cos 5x \sin 3x) dx$

3. (10 points) Consider the “triangular region” in the first quadrant bounded on the left by the  $y$ -axis and on the right by the curves  $y = \sin x$  and  $y = \cos x$ . Compute the volume of the solid  $S$  obtained by revolving this region about the  $x$ -axis.

4. (10 points) The region  $R$  is bounded by the curves  $y = \frac{1}{\sqrt[4]{3x^2 + 1}}$ ,  $x = 1$ , the  $y$ -axis, and the  $x$ -axis.

- (a) Compute the volume of the solid  $S_1$  obtained by revolving  $R$  around  $x$ -axis.
- (b) Compute the volume of the solid  $S_2$  obtained by revolving  $R$  around  $y$ -axis.

5. (10 points) Find  $\int \frac{dx}{(\sqrt[3]{x} + 1)\sqrt{x}}$