

**Math 231 - Practice Exam
Due**

This is a practice exam for Math 231. I suggest that you take it as a regular exam: set aside 50 minutes and put it aside at the end of that time. An solution set will be posted next week on the class website.

Please check the class website periodically for updates, typos, etc.

<http://www.math.uiuc.edu/~jared/Math455>

(Name) _____

Problem	Points	Possible Points
1		15
2		15
3		15
4		15
5		20
6		20
Total		100

Problem 1:

$$\int x \sin^2(x) dx$$

Problem 2:

$$\int \frac{dx}{x(x^2 + 1)}$$

Problem 3:

$$\int \sec^2(x) \tan^2(x) dx$$

Problem 4:

$$\int \frac{dx}{x(x^2 - 1)^{\frac{3}{2}}}$$

Problem 5:

$$\int \frac{dx}{x(x-1)}$$

State the comparison test for improper integrals, and determine whether or not the following integral converges by comparing to an appropriate test function:

$$\int_1^{\infty} \frac{dx}{\sqrt{x}(x+1)}$$