

## 175 §2- CALCULUS II - Quiz 5

Instructor: Andrés E. Caicedo

November 6, 2009

Name \_\_\_\_\_

Please show all your work, not just final answers. Do not skip any nontrivial steps. Just the right answer does not count. Some computations and then an unjustified jump to the right answer, is not sufficient, and will only receive partial credit, the same as if only the computations had been given without the final answer. Numerical approximations (as provided, for example, by a calculator) are not acceptable.

You may use the fact that  $a \ln b = \ln b^a$  and that  $\ln a + \ln b = \ln(ab)$ .

1. Find the partial fractions decomposition of  $\frac{1}{x^4 - x^2}$ .
2. Does  $\int_1^2 \frac{dx}{x^4 - x^2}$  converge or diverge? (If it converges, find its value; if it diverges, make sure to justify your answer.)
3. Does  $\int_2^\infty \frac{dx}{x^4 - x^2}$  converge or diverge? (If it converges, find its value; if it diverges, make sure to justify your reasoning.)