

# Math 102 Practice Exam 1

Spring 2008

1. Determine whether or not the following integrals converge. If they converge, evaluate. If they diverge to  $\pm\infty$ , specify which one.

(a)  $\int_0^2 \frac{x}{x^2-1} dx$ .

(b)  $\int_0^1 \frac{e^{\sqrt{x}}}{\sqrt{x}} dx$ .

2. Integrate  $\int \sec^5 x \tan^3 x dx$ .

3. Integrate  $\int \ln(1+x^2) dx$ .

4. Integrate  $\int \frac{x^5-4}{x^4+2x^2} dx$ .

5. Integrate  $\int \frac{e^{2x}}{4-e^{4x}} dx$ .

6. Integrate  $\int \frac{1}{(5+4x-x^2)^{3/2}} dx$ .