TEST 4–extra

Math 11012
April 25, 2006

Name: ____________________________________________

Print your name clearly

• Show all work, clearly and in order, if you want to get full credit. I reserve the right to take off points if I cannot see how you arrived at your answer (even if your final answer is correct).

1. Find each indefinite integral.(50)

a) \( \int (21\sqrt[3]{x^3} + \frac{2}{\sqrt{x}}) \, dx \)

b) \( \int (1 - 7x) \sqrt[3]{x} \, dx \)

c) \( \int x^{-1/2} \, dx \)

d) \( \int \frac{6x^3 - 6x^2 - 1}{x} \, dx \)

e) \( \int \frac{3}{\sqrt{x}} \, dx \)

f) \( \int 0.24e^{0.001x} \, dx \)
2. Find each indefinite or definite integral

1) (10 pts)

\[ \int_{0}^{2} \frac{(x+1)^2}{x} \, dx \]

2) (10 pts)

\[ \int \frac{(t-1)(t+3)}{t^2} \, dt \]
3) (10pts) (HINT: let \( u = x^5 \))
\[ \int e^{x^5} x^4 \, dx \]

4) (10pts) (HINT: let \( u = x^3 - 3x + 7 \))
\[ \int e^{x^3 - 3x + 7} (x^2 - 1) \, dx \]

3. Application (10pts)
Find the area under the curve of \( y = e^{2x} \) from \( x = 0 \) to \( x = 1 \).