Fall 2000 #1

PRINT Your Name:_____

There are 10 problems on 4 pages. Each problem is worth 10 points. SHOW your work. *CIRCLE* your answer. **NO CALCULATORS! CHECK** your answer whenever possible.

1. Find $\int \frac{e^x}{e^x+1} dx$ $= \int \frac{du}{u} = \ln|u| + C = \ln(e^x+1) + C$

$u = e^x + 1$

$du = e^x dx$

2. Find $\int \frac{e^x}{\sqrt{e^x+1}} dx$ $= \int u^{-\frac{1}{2}} du = 2u^{\frac{1}{2}} + C = 2\sqrt{e^x+1} + C$

3. If $y = 2^x + x^2$, then find $\frac{dy}{dx}$.

$\frac{dy}{dx} = 2^x \ln 2 + 2x$