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 \( \int \frac{e^x}{e^x+1} \, dx \) \( = \int \frac{u}{u+1} \, du \) \( = \ln(1+u) + C = \ln(e^x+1) + C \)
   
   \( u = e^x + 1 \)
   \( du = e^x \, dx \)

2. Find \( \int \frac{e^x}{\sqrt{e^x+1}} \, dx \) \( = \int u^{\frac{1}{2}} \, du \) \( = \frac{2u^{\frac{3}{2}}}{3} + C = \frac{2 \sqrt{e^x+1}}{3} + C \)

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