

1. (7 pts.)  $\int_{\ln 3/4}^{\ln 4/3} \frac{e^t dt}{1 + e^{2t}}$

2. (7 pts.)  $\int_{-\infty}^0 \theta e^\theta d\theta$

3. (7 pts.) Does the following improper integral converge or diverge?  
You must show how you arrive at your answer.

$$\int_4^{\infty} \frac{2 \, dt}{t^{3/2} - 1}$$