Name: _____   _____ / 25

30 minutes maximum. No aids (book, calculator, etc.) are permitted. Show all work and use proper notation for full credit. Answers should be in reasonably-simplified form. 25 points possible.

1. (12 points) Evaluate the integrals using Integration by Parts.

   (a) $\displaystyle\int_1^2 xe^x\,dx$

   (b) $\displaystyle\int \arcsin(x)\,dx$

   (c) $\displaystyle\int x^2 \ln(x^4)\,dx$

2. (13 points) Evaluate the integrals below. Integration by Parts is not needed. (The first problem is 4 points. The others are 3 points.)

   (a) $\displaystyle \int_{e}^{e^2} \frac{\ln(\ln(x))}{x\ln(x)}\, dx$

   (b) $\displaystyle \int \tan(x)\, dx$

(c) $\displaystyle\int \tan(x)\sec^4(x)\,dx$

(d) $\displaystyle\int \sin^3(x)\,dx$