Name: Section: 7 8

1. Find $\displaystyle\int_2^\infty \frac{1}{1-x}\,dx$.

2. How large should $n$ be to guarantee that Simpson's Rule $S_n$ is within $10^{-4}$ of $\int_{-1}^3 xe^x\,dx$. The fourth derivative of $f(x) = xe^x$ is $f^{(4)}(x) = (x+4)e^x$. The error estimate in using Simpson's Rule is

$$|E_S| \le \frac{K(b-a)^5}{180n^4} \text{ where } |f^{(4)}(x)| \le K \text{ for all } a \le x \le b.$$