PURDUE UNIVERSITY ·	cs $59000$ -nmc
NETWORKS & MATRIX	COMPUTATIONS

 $\begin{array}{c} {\rm L\,E\,C\,T\,U\,R\,E} \\ {\it David\,F.\,\,Gleich} \\ {\it August\,\,28,\,\,2011} \end{array}$ 

CS 59000-NMC, 30 August 2011

Your name:

Please answer the following questions. You may not use any outside references or technology. Justify and explain all answers. This quiz is for my own evaluation, so that I can provide better instruction in the course.

## Question

Consider the vector 1-norm. Show than

$$\|\mathbf{x}\|_{\infty} \le \|\mathbf{x}\|_1 \le n\|\mathbf{x}\|_{\infty}.$$

When is the inequality an equality?