MTHT 530 Analysis for Teachers II
Problem Set 10

Due: Wednesday April 12

Do problem 28 and 29 from Chapter 18 of Spivak's *Calculus*

1) a) Prove that

$$\sum_{i=2}^{n} \frac{1}{i} < \ln n < \sum_{i=1}^{n-1} \frac{1}{i}$$

for all $n \in \mathbb{N}$ with $n > 1$.

b) Use a) to prove that $\displaystyle\sum_{n=1}^{\infty} \frac{1}{n}$ diverges.