Mathematics 3790H – Analysis I: Introduction to analysis
Trent University, Winter 2012

Assignment #5
Squeezing more out of the Integral Test
Due on Thursday, 16 February, 2012.

Recall that we showed that $\sum\limits_{n=1}^{\infty} \dfrac{1}{n}$ diverged by interpreting the series as a sum of areas and comparing it to the area under the graph of $f(x) = \dfrac{1}{x}$.

1. Use area-comparison arguments to show that $\sum\limits_{n=1}^{\infty} \dfrac{1}{1+n^2}$ converges to some number between $\dfrac{\pi}{4}$ and $\dfrac{\pi}{2}$. *[10]*