Homework 04

1. Section 10.3: Problem 51.

   Hint: use "Bounds for the Remainder in the Integral Test" on page 611.

2. Section 10.6: Problems 11, 25, 26, 28, 29, 30, 35, 39, 41, 49, 53.

   Remark: Take the following for granted: The sequences $a_n = \dfrac{\ln n}{n}$, $b_n = \dfrac{\tan^{-1} n}{n^2 + 1}$, $c_n = \dfrac{\ln n}{n - \ln n}$, $d_n = (\sqrt{n+1} - \sqrt{n})$ are all decreasing for $n > 3$.

3. Section 10.7: problems 7, 11, 15, 19, 23, 29, 40, 43, 47,

   Hint for problem 40: $\dfrac{n}{n+1} = \left(1 + \dfrac{1}{n}\right)^{-1}$.

4. Section 10.7: Find a power series that converges on $(1, 3)$ and diverges elsewhere. Do the same for $(1, 3]$, $[1, 3)$ and $[1, 3]$, respectively.