Homework Set 15

(sect 8.4: Comparison tests & Alternating Series)

A comparison test or the alternating series test to determine whether each series converges or diverges.

$$\sum \frac{5}{n^4 + 2n^3}$$

$$\sum \frac{n^4}{n^5 - 3n^2}$$

$$\sum (-1)^k \frac{\sqrt{k}}{1 + 7\sqrt{k}}$$

$$\sum \frac{n}{n^3 - 14n^2 + 1}$$

$$\sum \frac{\sin^2 k}{k^2 + 1}$$

$$\sum \frac{(-1)^n \cdot n^2}{7^n}$$

Is the series $\sum \frac{(-1)^n}{n}$ absolutely convergent? If not, is it convergent?

How many terms of the series do we need to add in order for the sum to be accurate to within 0.001?

$$\frac{\pi}{4} = \sum_{k=0}^{\infty} \frac{(-1)^{k+1}}{2k + 1}$$