Homework Set 8

DUE: APR 4 - 6, 2018 (AT THE BEGINNING OF RECITATION)

1. Decide whether the series below diverge, converge conditionally, or converge absolutely.

   (a) $\displaystyle\sum_{n=1}^{\infty}(-1)^n\,\frac{1}{n}$

   (b) $\displaystyle\sum_{n=1}^{\infty}(-1)^n\,\frac{1}{\sqrt{n}}$

   (c) $\displaystyle\sum_{n=1}^{\infty}(-1)^n\,\frac{e^n}{n^2}$

   (d) $\displaystyle\sum_{n=1}^{\infty}(-1)^n\,\frac{1}{n^2+1}$

2. Find the interval of convergence for each of the power series below.
   Do not forget to check the endpoints!

   (a) $\displaystyle\sum_{n=1}^{\infty}\frac{x^n}{2n}$

   (b) $\displaystyle\sum_{n=1}^{\infty}\frac{(-1)^n n^2 x^n}{2^n}$

   (c) $\displaystyle\sum_{n=1}^{\infty}\frac{2^n(x+3)^n}{\sqrt{n}}$

   (d) $\displaystyle\sum_{n=1}^{\infty}\frac{n!(x-7)^n}{2^n}$