

MATH 141, FALL 2011

Investigate the convergence of the following alternating series:

$$\sum_{n=1}^{\infty} \frac{(-1)^n}{\sqrt{n}} \quad \text{convergent}$$

$$\sum_{n=1}^{\infty} \frac{(-1)^{n(n-1)/2}}{2^n} \quad \text{convergent}$$

$$\sum_{n=1}^{\infty} (-1)^n \frac{2 + (-1)^n}{n} \quad \text{divergent}$$

$$\sum_{n=1}^{\infty} (-1)^n \frac{\sqrt{n}}{n + 100} \quad \text{convergent}$$

$$\sum_{n=1}^{\infty} \frac{(-1)^n}{\sqrt[n]{n}} \quad \text{divergent}$$

$$\sum_{n=1}^{\infty} \frac{(-1)^{n-1}}{n^p} \quad \text{convergent for } p > 0, \text{ absolutely for } p > 1$$

$$\sum_{n=2}^{\infty} (-1)^n \frac{\sqrt[n]{n}}{\ln(n)} \quad \text{convergent}$$