Math 1B: Discussion 3/7/19

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Question 1

Determine whether the series diverges, converges conditionally, or converges absolutely.

$$\sum_{n=1}^{\infty}(-1)^n$$

$$\sum_{n=1}^{\infty}\frac{\cos(n^2)}{n\sqrt{n}}$$

$$\sum_{n=1}^{\infty}(-1)^{n+1}\left(\frac{2}{3}\right)^{2n}$$

$$\sum_{n=1}^{\infty}(-1)^{n^2-1}$$

$$\sum_{n=1}^{\infty}\frac{(-1)^n}{\sqrt{n}+e^{-n}}$$

$$\sum_{n=1}^{\infty}\frac{(-1)^{n+1}}{n^n}$$

$$\sum_{n=2}^{\infty}\frac{(-1)^{n^2}}{n(\ln(n))^2}$$

$$\sum_{n=1}^{\infty}(-1)^n n^5 2^{-n}$$

$$\sum_{n=1}^{\infty}\frac{(-1)^n\ln(n)}{\sqrt{n}}$$

Question 2

Use the ratio test or root test to determine whether the following series converge (absolutely) or diverge.

$$\sum_{n=1}^{\infty} \frac{4^n}{n!}$$

$$\sum_{n=0}^{\infty} \frac{(-1)^n e^{2n+1}}{(2n+1)!}$$

$$\sum_{n=1}^{\infty} \frac{(-1)^{n-1} \ln(n) n!}{n^n}$$

$$\sum_{n=1}^{\infty} \frac{(-1)^n \ln(n) n^3}{2^n}$$

$$\sum_{n=1}^{\infty} \frac{n!}{n^n}$$

$$\sum_{n=1}^{\infty} \frac{(2n)!}{n^n}$$

$$\sum_{n=1}^{\infty} \frac{(2n)!}{4^n (n+1)^{2n}}$$