

31)  $\sum_{n=1}^{\infty} \frac{\cos n\pi}{n}$

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

n=1	-1
n=2	1
n=3	-1
n=4	1

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

$\lim_{n \rightarrow \infty} \frac{1}{n} = 0$

$\frac{1}{n+1} < \frac{1}{n}$

CONVERGES  
CONDITIONALLY

49)  $\sum_{n=1}^{\infty} \frac{(x+\pi)^n}{\sqrt{n}}$

$\lim_{n \rightarrow \infty} \left| \frac{(x+\pi)^{n+1}}{\sqrt{n+1}} \cdot \frac{\sqrt{n}}{(x+\pi)^n} \right| < 1$

$\lim_{n \rightarrow \infty} \left| \frac{\sqrt{n}}{\sqrt{n+1}} (x+\pi) \right| < 1$

$|x+\pi| < 1$

$x+\pi < 1$

$x+\pi > -1$

$x < 1-\pi$

$x > -1-\pi$

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

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

$\lim_{n \rightarrow \infty} \frac{1}{\sqrt{n}} = 0$

$\frac{1}{\sqrt{n+1}} < \frac{1}{\sqrt{n}}$

$\sum_{n=1}^{\infty} \frac{1}{\sqrt{n}}$  DIVERGES

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

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

$[-1-\pi, 1-\pi)$