

Alternating Series if

then

is an Alternating Series

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

(Ex 1.5)  $\sum_{n=1}^{\infty} \frac{(-1)^{n+1}(n+2)}{2n} =$

**Alternating Series Test: If**

1.

2.

**then the alternating series will converge.****Furthermore,**

2. (Ex 2) 
$$\sum_{n=1}^{\infty} \frac{(-1)^{n+1}}{\sqrt{n^2 + 1}} =$$

$$3. \text{ (Ex 8) } \sum_{n=1}^{\infty} \frac{(-1)^n \ln n}{\sqrt{n}} =$$

$$4. \text{ (Ex 16) } \sum_{n=1}^{\infty} (-1)^n n \sin\left(\frac{\pi}{n}\right) =$$

5. (Ex 20)  $\sum_{n=1}^{\infty} \frac{(-1)^{n+1}n!}{2n!} =$