

# Convergence of Series II - Worksheet

1. Is  $\sum_{n=1}^{\infty} \frac{1}{2n-1}$  convergent? Why?

6. Is  $\sum_{n=1}^{\infty} \frac{(-1)^n}{\sqrt{n}}$  convergent? Why?

2. Is  $\sum_{n=0}^{\infty} \frac{3^n}{n!}$  convergent? Why?

7. Is  $\sum_{n=1}^{\infty} \frac{2^n \sqrt{n}}{n!}$  convergent? Why?

3. Is  $\sum_{n=1}^{\infty} \frac{a^n n^2}{n!}$  convergent for  $a \neq 1$ ?  
Why?

8. Is  $\sum_{n=0}^{\infty} \frac{(n+1)!}{(100)^n \sqrt{n!}}$  convergent? Why?

4. Is  $\sum_{n=1}^{\infty} \frac{1}{n^{3/2} + n^2}$  convergent? Why?

9. Is  $\sum_{n=0}^{\infty} \frac{(2n)!}{(n!)^2}$  convergent? Why?

5. Is  $\sum_{n=1}^{\infty} \frac{(10)^n}{2^{n+1} n^2}$  convergent? Why?

10. Is  $\sum_{n=0}^{\infty} \sin^{-1}(e^{-n})$  convergent? Why?

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