MATH 152, Fall 2018

Worksheet 8

1. Does the series

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

converge absolutely or diverge?

2. For the next problem, show that the series converge to a some sum S, then find the smallest value of n so that the $n-th$ partial sum s_n will guarantee the approximation of S to the required accuracy.

$$\sum_{k=1}^{\infty}\frac{(-1)^{k+1}}{\sqrt[4]{k+7}};\quad |S-s_n|<0.02$$

3. Use the Ratio Test to determine whether the series is convergent or divergent.

$$\sum_{n=1}^{\infty}\frac{\cos(n\pi/3)}{n!}$$

4. Use the Ratio Test to determine whether the series is convergent or divergent.

$$1-\frac{2!}{1\cdot 3}+\frac{3!}{1\cdot 3\cdot 5}-\frac{4!}{1\cdot 3\cdot 5\cdot 7}+\cdots+(-1)^{n-1}\frac{n!}{1\cdot 3\cdot 5\cdot\ \cdots\ \cdot(2n-1)}$$

5. A series $\sum_{n=1}^{\infty}a_n$ is defined by the equations

$$a_1=1;\quad a_{n+1}=\frac{2+\cos n}{\sqrt{n}}a_n$$

Determine whether the series is convergent or divergent.

6. Does the series

$$\sum_{n=3}^{\infty}\frac{\sin(n\pi/6)}{1+n\sqrt{n}}$$

converge absolutely, converge conditionally, or diverge?