BÀI TẬP CHƯƠNG 3

Bài 1. Khảo sát sự hội tụ của các chuỗi sau

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

2. $\displaystyle\sum_{n=1}^{\infty}(1-cos\frac{\pi}{n})$

3. $\displaystyle\sum_{n=1}^{\infty}(\sqrt{n^4+3}-\sqrt{n^4+1})$

4. $\displaystyle\sum_{n=1}^{\infty}\frac{1}{n}\sin\frac{1}{\sqrt{n}}$

5. $\displaystyle\sum_{n=2}^{\infty}\frac{1}{n\ln^2 n}$

6. $\displaystyle\sum_{n=1}^{\infty}\frac{2^n+3^n}{4^n+2n}$

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

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

9. $\displaystyle\sum_{n=1}^{\infty}2^n\sin\frac{1}{n!}$

10. $\displaystyle\sum_{n=1}^{\infty}\frac{1}{5^n}\left(\frac{n-1}{n}\right)^{n^2}$

11. $\displaystyle\sum_{n=3}^{\infty}\frac{7^n(n!)^2}{n^{2n}}$

12. $\displaystyle\sum_{n=1}^{+\infty}\frac{n+1}{n^2}$

Bài 2. Khảo sát sự hội tụ của các chuỗi sau

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

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

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

4. $\displaystyle\sum_{n=1}^{\infty}(-1)^n\frac{cosn^2}{2^n}$

5. $\displaystyle\sum_{n=1}^{\infty}(-1)^n\frac{1}{n\ln n}$

Bài 3. Tìm miền hội tụ của chuỗi hàm

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

2. $\displaystyle\sum_{n=1}^{\infty}\frac{x^n}{2^n+3^n}$

3. $\displaystyle\sum_{n=1}^{\infty}\frac{(x-4)^n}{\sqrt{n}}$

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

5. $\displaystyle\sum_{n=1}^{\infty}\left(\frac{n+1}{2n+1}\right)^n(x-2)^{2n}$

6. $\displaystyle\sum_{n=1}^{\infty}x^n\sin\frac{\pi}{2^n}$

7. $\displaystyle\sum_{n=1}^{\infty}x^n\ln n$

8. $\displaystyle\sum_{n=1}^{\infty}\frac{5^n x^n}{n!}$

9. $\displaystyle\sum_{n=1}^{\infty}\frac{\sqrt{n}}{(x-2)^n}$