List of suggested exercises, Section 9.5
For the DGD of July 3rd and 5th.

(1) For each of the following series, find the radius of convergence and the onterval of convergence.

$$(\#11) \quad \sum_{n=0}^{\infty}(5x)^n \qquad (\#12) \quad \sum_{n=0}^{\infty}n^3x^n \qquad (\#13) \quad \sum_{n=0}^{\infty}\frac{(n+1)x^n}{2^n+n}$$

$$(\#14) \quad \sum_{n=0}^{\infty}\frac{2^n(x-1)^n}{n} \qquad (\#25) \quad \sum_{n=2}^{\infty}\frac{(x-3)^n}{n} \qquad (\#26) \quad \sum_{n=1}^{\infty}\frac{n^2x^{2n}}{2^{2n}}$$

$$(\#27) \quad \sum_{n=0}^{\infty}\frac{(-1)^n(x-5)^n}{2^nn^2} \qquad (\#44) \quad \sum_{n=0}^{\infty}(2^n+n^2)x^n \qquad (\#45) \quad \sum_{n=0}^{\infty}\frac{x^n}{n!+1}$$

$$(\#42) \quad \sum_{n=0}^{\infty}nx^n \qquad \sum_{n=0}^{\infty}\frac{(x+4)^n}{\sqrt{n+1}} \qquad \sum_{n=0}^{\infty}\frac{(-1)^n(x+4)^n}{\sqrt{n+1}}$$

$$\sum_{n=0}^{\infty}(-1)^n\sqrt{n}(x+1)^n \qquad \sum_{n=0}^{\infty}\sqrt{n}(x+1)^n \qquad \sum_{n=0}^{\infty}\left(\frac{n}{2}\right)^n(x+6)^n$$

$$\sum_{n=2}^{\infty}\frac{(x+1)^n}{\ln^n(n)} \qquad \sum_{n=2}^{\infty}\frac{(x+1)^n}{\ln(n^n)} \qquad \sum_{n=1}^{\infty}\frac{(3x+2)^n}{n(n+1)}$$

$$(\#16) \quad x - \frac{x^2}{4} + \frac{x^3}{9} - \frac{x^4}{16} + \frac{x^5}{25} + \cdots$$

$$(\#20) \quad 3x + \frac{5}{2}x^2 + \frac{7}{3}x^3 + \frac{9}{4}x^4 + \frac{11}{5}x^5 + \cdots$$