

For the following, determine the a) radius of convergence, b) the interval of convergence

1. $\sum_{n=0}^{\infty} \frac{(-x)^n}{n!}$

3. $\sum_{n=0}^{\infty} \frac{n!}{2^n} x^{2n}$

2. $\sum_{n=0}^{\infty} \left(\frac{2}{3}\right)^n (x-1)^n$

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

Find a Maclaurin series for the function using shortcuts. Write the first three nonzero terms and the general term.

5. $\frac{1}{1-6x}$

9. $\frac{e^x - \cos x}{x}$

6. $\sin \pi x$

10. $-x + \sin x$

7. $1 + \cos 2x$

11. $\cos \sqrt{5x}$

8. $\frac{1 - \sin(x^2)}{x}$

12. xe^{-x^2}

Find the following

13.	Interval of convergence
$\sum_{n=1}^{\infty} \frac{(x)^n}{n}$	
$f'(x) =$	
$\int f(x)dx =$	

14.	Interval of convergence
$\sum_{n=1}^{\infty} \frac{(-1)^n (x-2)^n}{n}$	
$f'(x) =$	
$\int f(x)dx =$	

