

Homework, Section 6.1

Also try the first 6 problems in the text, and also 34, 37, 38.

1. Find the radius of convergence and interval of convergence of the given series:

(a)	(e)	(j)
$\sum_{n=1}^{\infty} (-1)^n n (x-2)^n$	$\sum_{n=1}^{\infty} \frac{x^n}{n 3^n}.$	$\sum_{n=1}^{\infty} \frac{3^n (x-4)^n}{\sqrt{n}}.$
(b)	(f)	(k)
$\sum_{n=1}^{\infty} \frac{(-1)^n x^n}{\sqrt[3]{n}}$	$\sum_{n=2}^{\infty} \frac{(-1)^n x^n}{4^n \ln n}.$	$\sum_{n=1}^{\infty} \frac{n(x-1)^n}{4^n}.$
(c)	(g)	(l)
$\sum_{n=0}^{\infty} \frac{x^n}{n!}$	$\sum_{n=0}^{\infty} \frac{(-1)^n x^{2n+1}}{(2n+1)!}.$	$\sum_{n=1}^{\infty} \frac{(2x-1)^n}{5^n \sqrt{n}}.$
(d)	(h)	(m)
$\sum_{n=1}^{\infty} n^n x^n$	$\sum_{n=0}^{\infty} \frac{(x-2)^n}{n^2 + 1}.$	$\sum_{n=1}^{\infty} \frac{(-1)^n n^2 x^n}{2^n}.$
(i)		
	$\sum_{n=0}^{\infty} \frac{(-1)^n (x-3)^n}{2n+1}.$	

29. If

$$\sum_{n=0}^{\infty} c_n 4^n$$

is convergent, does it follow that the following series are convergent?

(a) $\sum_{n=0}^{\infty} c_n (-4)^n$

(b) $\sum_{n=0}^{\infty} c_n (-2)^n$

30. Suppose that

$$\sum_{n=0}^{\infty} c_n x^n$$

converges when $x = -4$ and diverges when $x = 6$. What can be said about the convergence or divergence of the following series?

(a) $\sum_{n=0}^{\infty} c_n 8^n$

(b) $\sum_{n=0}^{\infty} c_n$

(c) $\sum_{n=0}^{\infty} (-1)^n c_n 9^n$

(d) $\sum_{n=0}^{\infty} c_n (-3)^n$