n	$f^{(n)}(x)$	$f^{(n)}(0)$
0	$7(1-x)^{-2}$	7
1	$14(1-x)^{-3}$	14
2	$42(1-x)^{-4}$	42
3	$168(1-x)^{-5}$	168
4	$840(1-x)^{-6}$	840
$\vdots$	$\vdots$	$\vdots$

$$\begin{aligned} 7(1-x)^{-2} &= f(0) + f'(0)x + \frac{f''(0)}{2!}x^2 + \frac{f'''(0)}{3!}x^3 + \frac{f^{(4)}(0)}{4!}x^4 + \cdots \\ &= 7 + 14x + \tfrac{42}{2}x^2 + \tfrac{168}{6}x^3 + \tfrac{840}{24}x^4 + \cdots \\ &= 7 + 14x + 21x^2 + 28x^3 + 35x^4 + \cdots = 7\sum_{n=0}^{\infty}(n+1)x^n \end{aligned}$$

$\lim\limits_{n\to\infty}\left|\dfrac{a_{n+1}}{a_n}\right| = \lim\limits_{n\to\infty}\left|\dfrac{7(n+2)x^{n+1}}{7(n+1)x^n}\right| = |x|\lim\limits_{n\to\infty}\dfrac{n+2}{n+1} = |x|\,(1) = |x| < 1$ for convergence, so $R = 1$.