n	$f^{(n)}(x)$	$f^{(n)}(-4)$
0	$2/x$	$-2/4$
1	$-2/x^2$	$-2/4^2$
2	$4/x^3$	$-4/4^3$
3	$-12/x^4$	$-12/4^4$
4	$48/x^5$	$-48/4^5$
$\vdots$	$\vdots$	$\vdots$

$$\begin{aligned} f(x) &= \frac{2}{x} = \sum_{n=0}^{\infty} \frac{f^{(n)}(-4)}{n!}(x+4)^n \\ &= \frac{-2/4}{0!}(x+4)^0 + \frac{-2/4^2}{1!}(x+4)^1 + \frac{-4/4^3}{2!}(x+4)^2 \\ &+ \frac{-12/4^4}{3!}(x+4)^3 + \frac{-48/4^5}{4!}(x+4)^4 + \cdots \\ &= 2 \cdot \sum_{n=0}^{\infty} \frac{-n!/4^{n+1}}{n!}(x+4)^n = -2 \cdot \sum_{n=0}^{\infty} \frac{(x+4)^n}{4^{n+1}} \end{aligned}$$

$$\begin{aligned} \lim_{n\to\infty}\left|\frac{a_{n+1}}{a_n}\right| &= \lim_{n\to\infty}\left|\frac{(x+4)^{n+1}}{4^{n+2}} \cdot \frac{4^{n+1}}{(x+4)^n}\right| \\ &= \lim_{n\to\infty}\frac{|x+4|}{4} = \frac{|x+4|}{4} < 1 \text{ for convergence,} \end{aligned}$$

so $|x+4| < 4$ and $R = 4$.