1. Consider the power series
\[ \sum_{n=1}^{\infty} \frac{(-3)^n}{\sqrt{n}}(x + 4)^n. \]
(a) Determine the radius of convergence of this series.
(b) Determine the interval of convergence of this series.

2. Find a power series expansion of
\[ f(x) = \frac{1}{7 - 4x} \]
about \( x = -1 \). Determine the radius of convergence of this power series.

3. Let
\[ f(x) = x \cos(x). \]
(a) Write the fourth Taylor polynomial \( T_4(x) \) of \( f(x) \) about 0.
(b) Use Taylor’s inequality to give a bound on the error incurred in approximating \( f(x) \) by \( T_4(x) \) for \(-1/2 \leq x \leq 1/2.\)