6. [5 points] Consider the function $F(x)$ defined by its Taylor series around $x = 0$,

$$F(x) = \sum_{n=0}^{\infty} \frac{(-1)^n x^{2n+1}}{n!(2n+1)!}.$$

Find $F^{(2024)}(0)$ and $F^{(2025)}(0)$. You do not need to simplify your answers.

Answer: $F^{(2024)}(0) =$ _____ and $F^{(2025)}(0) =$ _____

7. [7 points] Consider the function

$$g(x) = \frac{3}{\sqrt{1+5x^2}}.$$

a. [5 points] Give the first three nonzero terms of the Taylor series of $g(x)$ centered about $x = 0$. Show all your work.

Answer: _____

b. [2 points] What is the radius of convergence of the Taylor series for $g(x)$?

Answer: _____