9. [11 points] Consider the function

$$g(x) = \frac{4}{\sqrt{1+5x^3}}.$$

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 $g(x)$ around $x = 0$?

Answer: _____

c. [4 points] Suppose that $G(x)$ is an antiderivative for $g(x)$ which satisfies $G(0) = 5$. Give the first four non-zero terms of the Taylor series for $G(x)$ centered about $x = 0$.

Answer: _____