

7. [14 points] Consider the function  $g(x) = \int_0^{x^2} e^{-t^2} dt$ .
- a. [4 points] Suppose  $f(x) = g'(x)$ . Find a formula for  $f(x)$ .
- b. [6 points] Find the Taylor series of  $f(x)$  about  $x = 0$ . Write your answer using summation (sigma) notation, including proper indices.
- c. [4 points] Find the Taylor series of  $g(x)$  about  $x = 0$ . Write your answer using summation (sigma) notation, including proper indices.