Homework problem 1

Let $g(x) = \int_0^x e^{-\tau^2} d\tau$. Find $g'(1)$. Show all work.

Solution: by the Fundamental Theorem of Calculus,

$$g'(x) = \frac{d}{dx} \int_0^x e^{-\tau^2} d\tau = e^{-x^2},$$

so $g'(1) = e^{-1} = 1/e$.