

1. (7 pts) Let $q(x) = (1 + e^{-x})^{-1}$

a) (4 pts) Calculate the derivative $q'(x)$. No need to simplify.

b) (3 pts) Imagine inserting your answer from part a) into the integral below. What does the fundamental theorem of calculus tell you about the integral? You need not calculate a value.

$$\int_{-1000}^{1000} (\text{answer from part a}) dx =$$

2. (5 pts) $\int_3^9 (5 - 2f(x))dx = 22$. Find $\int_3^9 f(x)dx$.