3. [6 points] Let \( G(x) \) be defined by
\[
G(x) = \int_{2x+3}^{5x-7} e^{t^2-1} \, dt.
\]

a. [2 points] Find a value of \( x \) such that \( G(x) = 0 \).

b. [4 points] Find \( G'(3) \).

4. [5 points] A trapezoid has bases of length 12 and 8, and has height 7, as shown in the diagram below.

\[ \text{\hspace{1cm}} \]

a. [3 points] Write an expression which approximates the area of a rectangular slice of this trapezoid with small thickness \( \Delta h \) at a height \( h \) from the larger base. (See the above diagram.) Your expression should not involve any integrals.

b. [2 points] Using your expression from (a) to write an integral which, when evaluated, gives the total area of the trapezoid. Do not evaluate the integral.