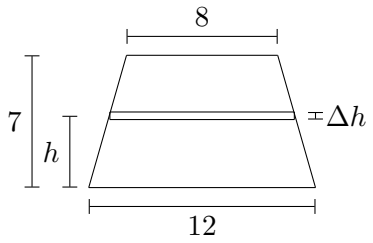
3. [6 points] Let $G(x)$ be defined by

$$G(x) = \int_{2x+3}^{5x-7} e^{t^2-1}\, dt.$$

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.



a. [3 points] Write an expression which approximates the area of a rectangular slice of this trapezoid with small thickness Δh 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.